

# THE MONIST.

## ON EGG-STRUCTURE AND THE HEREDITY OF INSTINCTS.

**T**HE INSTINCTIVE ACTIONS of animals are hereditary and can only be transmitted through the sexual cells. The problem of heredity from the physiological standpoint is, in brief, as follows: How can an egg, a simple vesicle filled with a viscous liquid which contains some solid constituents, be the bearer of such complicated mechanisms as the hereditary instincts? Two views are possible *a priori*: either the simplicity and homogeneity of the egg is only an illusion, and in reality it contains an invisible mysterious structure, of a similar degree of complexity to the adult animal; or the complicated mechanism of the instincts is the result of very simple circumstances which do not require any complicated structure for their transmission through the egg. All other possible suppositions are only compromises between these two possibilities. We shall here briefly present an argument in favor of the latter solution, which, we hope, will do away with some of the mystic aspects of heredity, and render a number of very complicated, albeit ingenious, theories redundant.

The first view, which has been of late very ably expounded to the readers of *The Monist*, is held, among others, by Nägeli and Weismann; not so much, however, for the sake of accounting for

the heredity of instincts as for the explanation of the continuity of forms in general. As the mysterious egg-structure which this theory presupposes is admittedly invisible, it is impossible to prove directly its non-existence. To the second view we are necessarily led when we attempt to analyse the instincts into their elements, which will deprive them of much that seemed very mysterious before. A few salient examples will be sufficient to throw a new light on the subject.

1. The larvæ of a certain butterfly (*Porthesia chrysorrhæa*) hatch in Germany in the fall and hibernate in large numbers in a web on trees and shrubs. The warm spring sun drives the larvæ out of their nest, and they creep upward on the branches of the tree until they reach the highest points, where they find in the young buds their first food. As soon as they have eaten, they creep down on the branches until they find new buds or leaves which in the meantime have appeared in abundance. It is apparent that the instinct of the caterpillars to creep upwards after they awake from their winter sleep saves their lives. If they were not guided by such an instinct, those that crept downwards would perish from lack of food. How can such an instinct be transmitted by a single cell?

Experiments which I made eight years ago prove that the young caterpillars of *Porthesia*, as long as they are starving, are oriented by the light, i. e., the light causes them to bring their plane of symmetry into the direction of the rays of light, and to turn their oral pole toward the source of light. This process is purely mechanical. The light produces in the skin of the animal a change (probably chemical), and this produces, through the central nervous system, changes in the tension of certain muscles. Suppose the light falls upon the right side of the animal. This would lead to an increase in the tension of the muscles which turn the head and body of the animal to the right. As soon as the head of the animal is turned towards the source of light and its median plane is in the direction of the rays, the symmetrical points of the surface are cut by the rays of light at the same angle, and the chemical effect of the light is the same in each pair of symmetrical points of the surface of the animal. Correspond-



ingly, the symmetrical muscles of both sides of the body are under equal tension, and there is no reason why the animal should deviate more towards one side than towards the other from the direction of the rays of light. Thus the animal goes towards the source of light. I may mention here, by the way, that this is also the mechanism by which the moth is forced into the flame. There is no such thing as an attraction of the moth by the light, but its fatal flight is only due to an orientation. We call those animals that are forced to turn their heads towards the source of light, and that consequently go towards the source of light, positively heliotropic.

Positive heliotropism of the young caterpillars of *Porthesia* leads them to the tips of the branches where they find their food. During the cold of winter they are rigid and immovable, the higher temperature of spring produces chemical changes in their bodies which causes them to move. The direction of motion, however, is dictated by the light. In the open air, where the light of the sky falls from all sides upon the animals, we may decompose each ray of light into a horizontal and vertical component. The horizontal components annihilate each other, and only the effect of the vertical component will remain. The animal, therefore, on account of its positive heliotropism, must creep upwards until it reaches the tip of a branch. Here it is held by the light. The chemical stimuli which are given to the animal by the young buds, determine, in a machine-like way, the feeding motions.

From these data we are able to answer the question, how much of a structure must be contained in the egg of *Porthesia*, in order to render possible the heredity of this curious instinct of the young caterpillars? The answer is, the egg must contain, first, a substance which is sensitive to light. This is possible without any complicated structure, even if we assume that the egg is only a mixture of different unformed substances. But this is only one of the elements which determine the positive heliotropism. The second circumstance is, as we have seen, the bilateral symmetry of the animal. For the transmission of the instinct, this, too, must be determined by the egg. This makes it necessary that a difference of the ventral and dorsal, of the oral and aboral pole is already

intimated in the ovum, or originates early during the development. An unequal distribution of the substances of the egg would suffice to bring about this peculiarity.

But we have seen that the same larvæ, as soon as they have eaten, leave the tips of the branches and creep downwards. Why does the light not hold them permanently at the highest point of the branches? My experiments showed that the caterpillars of the animals are heliotropic only as long as they are starving, while they lose their heliotropism as soon as they are fed. This is not the only observation of this kind, for I have found a series of facts which show that chemical changes influence the irritability of the animal towards the light. We may imagine that the taking up of food either leads to the destruction of the substances which are sensitive to light, or leads to changes which inhibit their action. Thus the analysis of the curious instincts of the caterpillars of *Porthesia* does away with all complications, which might very easily lead to the assumption of mysterious structures in the egg.

2. While in this case, the external circumstances lead the young offspring to the feeding places, there is a second class of instincts in which the female deposits its eggs at places where the hatching larvæ find their food. A simple example of this group of instincts is the deposition of the eggs of the common fly. They lay their eggs upon putrefying meat, or cheese, and these substances are the material upon which the young larvæ of the fly feed. I have often made the experiment of putting pieces of fat and of meat from the same animal side by side in front of the window, but the female fly never made a mistake; the eggs were always deposited upon the meat and never upon the fat. Moreover, I tried to raise the young larvæ upon fat. As was to be expected with this kind of food they did not grow and soon died. It was possible to find out in these young larvæ the mechanics of this peculiar instinct of their mothers. The larvæ are oriented by certain chemical substances which emanate from a centre, and this orientation takes place in the same way as the orientation of the larvæ of *Porthesia* by the light. The rôle which the ray of light plays in the heliotropic experiments is played in these experiments by the lines along which

the molecules are carried away from the centre of diffusion into the surrounding medium. The chemical effects of these molecules upon certain elements of the skin influence the tension of the muscles in somewhat the same way as the rays of light do in heliotropic animals. We call the orientation of an organism through diffusing molecules, chemotropism, and speak of positive chemotropism if the animal is forced to bring its axis of symmetry into the direction of the lines of diffusion, and to turn its head towards the centre of diffusion. In this orientation again, each pair of symmetrical points of the surface of the animal is cut at the same angle by the lines of diffusion. It can easily be shown that the larvæ of the fly are positively chemotropic towards certain volatile substances, which are formed in putrefying meat and cheese, but which are not contained in fat. The substances in question therefore are volatile nitrogenous compounds. The young larvæ of the fly is guided by these substances to the centre of diffusion in the same way that the moth is guided into the flame. The female fly possesses the same positive chemotropism for these substances as the larvæ, and is therefore led to the meat. On the meat chemical stimuli seem to produce in the form of a reflex the deposition of the eggs. Neither experience nor conscious choice plays any rôle in these processes.

If we raise the question, what must be contained in the egg in order to transmit this instinct, we see that again two things are necessary. First, the presence of a substance, which either is influenced directly by the above-mentioned volatile compounds contained in putrid meat, or from which such changeable substances can originate. Secondly, conditions which lead to a bilateral symmetry of the embryo. But neither of these two conditions presupposes any mysterious structure in the egg, such as Nägeli, Weismann and others assume.

3. A third group of instincts is represented by the periodic migrations of animals. I select as an example the periodic depth migrations of sea animals. I should have preferred the more popular instance of bird migrations, if it were not for the fact that we can experimentally analyse the migrations of sea animals, whereas the migrations of birds have not yet been, and cannot very well be,

submitted to experimental research. A number of sea animals begin to migrate upwards towards the surface of the ocean in the evening, while in the morning they begin to migrate downwards. But the remarkable circumstance is, that these forms never go deeper than four hundred metres. The latter circumstance points out the light as the moving force in these depth migrations. Water absorbs light and the thicker the layer of water the more light is absorbed. It has been found that at the depth of four hundred metres a photographic plate is no longer affected. The animals which live free at the surface of the ocean, as far as I have been able to examine them, are all positively heliotropic. Those among them which undergo daily the above mentioned periodic migration into the depth, possess some peculiarities which can only be understood if we go a little deeper into the theory of animal heliotropism.

In addition to animals that are positively heliotropic, there are others that are negatively heliotropic: they bring their median plane also into the direction of the rays of light, but turn their *aboral* poles to the source of light. The difference between negatively and positively heliotropic animals is determined by the following circumstance: If the light falls upon one side of a positively heliotropic animal, an *increase* takes place in the tension of those muscles which turn the head of the animal towards the source of light, while in negatively heliotropic animals under the influence of one-sided illumination a *decrease* of the tension of the same muscles takes place. The consequence is that these negatively heliotropic animals are forced to move in a straight line away from the source of light, while the positively heliotropic animals are forced to move towards the source of light. Groom and I have examined the heliotropism of the larva of a Crustacean *Balanus perforatus* of which it was known that it undergoes such a periodic depth migration. One of the results of our experiments was that these larvæ are sometimes negatively and sometimes positively heliotropic and we succeeded in making them positively or negatively heliotropic at desire. In weak light, especially in gas light which contains relatively few blue rays, they became and remained positively heliotropic; while, in strong light, they invariably became very soon



negatively heliotropic. This determines the depth migrations of these animals. If in the morning they are near the surface of the ocean, the strong light makes them negatively heliotropic, and forces them vertically downwards, as only the vertical component of the reflected light of the sky can orient these animals in the open sea. But as soon as they approach a depth of four hundred metres the light becomes so weak, that they now become positively heliotropic. They, therefore, must begin to migrate upwards again, but they cannot penetrate to the surface, as during the daytime they very soon reach a region of strong light, where they become negatively heliotropic. Thus they are kept suspended during the day time at a certain depth, which, however, is less than four hundred metres. But as soon as it grows darker and the intensity of the light in the water begins to decrease more and more, they must on account of their positive heliotropism, ascend into constantly higher regions; until during the night, when the intensity of the light is weak, they are held at the surface of the sea. In the morning they again become negatively heliotropic, starting their downward career over again.

But there is also another depth migration of a larger period, which corresponds more to the migration of the birds. In the Bay of Naples, as Chun has found, certain animals remain during summer, even during the night, at a greater depth without ever coming to the surface. This is probably caused by the higher temperature which makes certain animals, even in weak light, negatively heliotropic, while the same animals, at a lower temperature, remain positively heliotropic, even in the strongest light. I found these reactions among others in larvæ of *Polygordius*.

We therefore see that the instinct of migration, as far as it appears in the periodic depth-migrations of marine animals, can be explained by the presence of a substance which is sensitive toward light but which undergoes certain modifications with the change of light or temperature; and we can easily understand that a simple cell like the egg can be the carrier of this substance or some other substance from which it originates.

4. A number of animals show habits which we might, perhaps,

call protective instincts. Such animals hide in crevices or burrow. Thus they escape their enemies. For the heredity of this instinct equally simple circumstances suffice as for the heredity of the instincts characterised above. I have found that animals which force themselves into crevices do not do this in order to escape their enemies, but that these animals are forced to bring their bodies in contact with solid bodies. This kind of irritability is found in *Forficula*, in certain kinds of butterflies (*Amphipyra*), in larvæ of many insects and in worms. If one puts two plates of glass one above the other and so near that they are only separated by a small space, the above-mentioned animals force themselves between the two plates. They even do that when the plates are exposed to the full sunlight, in which case they are, of course, not protected from their enemies. They do it, moreover, when one-half of the box in which they are is quite dark, but does not offer them any such contact-stimuli as the two plates of glass.

This apparent protective instinct is a tropism of a similar kind as heliotropism, with this difference only that contact instead of light forms the cause of orientation. I called this class of phenomena orientation stereotropism, and could show that there is positive and negative stereotropism. In a hydroid, *Tubularia*, the polyp is negatively stereotropic, that is to say, it bends away from a solid body with which it comes in contact, while the root is positively stereotropic.

This peculiar form of irritability appears to play a rôle in a process which is frequently quoted, viz., the founding of a new nest by ants. At the time of sexual maturity, the males and females of ants become very energetically positively heliotropic, and this heliotropism may possibly direct them in their wedding flight. They leave their nests and follow the direction of the rays of light in a swarm. Procreation takes place in the air. As soon as it becomes darker, stereotropism overcomes the influence of light, the animals fall down and creep into crevices where they are held by their positive stereotropism and where they now deposit their eggs.

How contact-stimuli can affect life-phenomena is less easily explained than in the case of light. Possibly the pressure or fric-

tion against solid bodies influences the chemical processes in the cells. It is possible, too, that capillary effects may play a rôle. In any case, purely metabolic conditions are sufficient to explain these instincts and to do away with mystical ideas concerning their transmission through the egg.

## II.

Through the above-mentioned facts we have been led to the view that, as far as the instincts are concerned, there is no reason to suppose that the egg contains other mysterious complicated structures than such as might possibly be expressed in the formulæ of the chemist. As soon as we decompose the complicated instincts into their elements, we understand that a simple cell like the egg can be the bearer of complicated instincts. The conditions in the egg which are required for this purpose are, to emphasise it once more, (1) polar differences in the chemical constitution in the egg substance, and (2) the presence of such substances in the egg as determine heliotropic, chemotropic, stereotropic, and similar phenomena of irritability.

But the egg is the bearer of another series of hereditary qualities, viz., of the animal's bodily system. Again we must raise the question how such a simple thing as the egg can be the carrier of circumstances which determine so complicated structures as are those of most animals. Again we have, *a priori*, the choice between two answers. Either the simplicity of the egg-structure is only an illusion, and we have in reality an invisible structure of the same degree of complexity in the egg as that of the adult organism; or, secondly, we do not require the mysterious structures for the transmission of such complicated mechanisms as seem to be necessary for the formation of organs, and comparatively simple conditions of the cellular substance in connexion with external circumstances are sufficient to explain the mystery.

It is well known that the egg of a sea-urchin is at first a single spherical cell which after fertilisation breaks up into many correspondingly smaller cells, from which aggregation of small cells a hollow sphere originates filled with liquid, the so-called blastula.

The wall of this hollow sphere is formed by the small cells of the egg. At this stage of development the larvæ are already able to swim around. A little later an increased growth takes place at one place of this hollow sphere, and the consequence is that this rapidly growing part is pushed into the interior of the hollow sphere. Thus the next embryonic phase is reached, the so-called gastrula stage. Finally in certain places of the gastrula, crystals of calcium salts are formed, and the skeleton originates, with the formation of which the embryo enters the so-called pluteus stage.

What must be contained in the egg in order to cause this succession of larval stages which finally lead to the adult form of the sea urchin? If we analyse the conditions which lead to the origin of these successive stages, we see that circumstances of no less simplicity are sufficient as for the heredity of instincts. The blastula is determined through two circumstances: (1) through the fact that the spherical egg is surrounded by sea water, and (2) that the osmotic and metabolic qualities of the protoplasm of the egg are of such a nature that liquid is pressed from the water into the interior of the sphere. In addition, capillary forces between the cells probably play a rôle, too, in the arrangement of the wall of the blastula. Thus the cavity of the blastula is formed. Therefore the egg does not need any other qualities for the heredity of the blastula stage, than certain chemical substances and the osmotic properties which are peculiar to almost all living protoplasms, and which we can imitate in the laboratory in artificial membranes.

The formation of the gastrula from the blastula presupposes that two different substances are present in the egg, which form the ectoderm and the entoderm. These may be separated from the beginning, and this would harmonise with the assumption which we have made in regard to the instincts, viz., that the different poles of the animal are already intimated in the unicellular egg by a corresponding distribution of the different substances. But it is not even absolutely necessary that this separation exists already in the original egg-cell. It is quite possible that migrations of substances take place in the blastula through osmosis, which lead to a gathering of specific entodermal substances at a certain place in the blas-



tula. Here the entoderm is formed and invagination into the cavity of the blastula takes place.

The formation of a skeleton is nothing but the precipitation of crystals of certain salts of calcium. The conditions for this are purely physical, and without doubt are determined through metabolism and osmotic processes. Through their action such an increase in the concentration of the intracellular or pericellular liquids is produced in certain places that these crystals must be formed. Thus again, as in the case of instinct, the analysis of the phenomena renders the assumption of mysteriously complicated structures in the egg unnecessary.

That this idea is correct can be proven by the following experiment: If one brings newly fertilised eggs of a Sea Urchin (*Arbacia*) into sea water which has been diluted by the addition of one hundred per cent. fresh water, the contents of the egg take up so much water that the membrane of the egg bursts. Part of the protoplasm flows out from the egg without becoming entirely separated from the protoplasm which remains in the egg. Both droplets of protoplasm outside as well as inside the egg assume a spherical shape. Thus the egg which normally has the shape of a sphere assumes the shape of a dumb-bell. If these dumb-bell shaped eggs are brought back into normal sea water they develop. Very often, in fact in most cases, each of the two spheres of the dumb-bell will form a special blastula, so that such an egg gives rise to twins. The rest of the eggs form a single blastula which in the beginning is dumb-bell shaped but which later on becomes spherical. The later development of the twins as well as of the single Blastula is in general a normal one. This result of the experiments corresponds with our proposition that the blastula is determined by the osmotic entering of liquids into the interior of the segmented egg. If the egg is dumb-bell shaped a secretion must take place into the centre of both spheres of the dumb-bell. If, in this case, the substance which connects the two spheres is not torn we get two blastulae and consequently twins. But if the hydrostatic pressure inside of the spheres or any other conditions bring about a communication between the liquid contents of the two hollow spheres, then

only one blastula and only one embryo is formed. If the egg contained a mysterious structure which pre-determines the future embryo, we should expect that *one distorted* larva would originate from the egg transformed into a double sphere, and not two or one perfect larvæ, as is generally the case.

Still another field of phenomena makes it impossible to attempt to lead back the hereditary forms to mysterious egg-structures of a highly complicated nature. I mean the phenomena of heteromorphosis. By heteromorphosis we mean the substitution of an organ by another one which is different morphologically and physiologically. Tubularia, a hydroid, consists of a stem which carries on one end, a polyp or head and on the other end a root or foot. If one cuts off the foot and surrounds the wound with sea water from all sides, a new head is formed instead of a foot. We thus have an animal which has a head on each end of its body. But if we bring the wound in contact with a solid body, such as the bottom of the aquarium, a foot is formed. If we cut a piece out of the stem, which is only of the size of a polyp and surround it by water from all sides, a head is formed at either end, but as there is no material left between the two heads, we thus obtain Janus heads, without stem and foot.

These two kinds of experiments may suffice to intimate that as soon as we begin to analyse the process of morphogenesis, we find it unnecessary and even faulty to assume a complicated structure in the egg in order to explain the continuity of forms.

Finally, I should like to emphasise one circumstance which repeats itself in the history of science and especially biology. Whenever we are not able to explain complicated phenomena, we are at first inclined to imagine that their cause must be of similar complication to the phenomenon itself. Thus the idea of an invisible complicated egg-structure was adopted in order to explain the heredity of instincts and forms, and thus the ideas of mysterious structures of the ganglionic cells are still held by many in order to explain the mechanism of reflex phenomena and instinct. All these attempts fail for the reason that they try to explain complicated phenomena without having them analysed into their simpler con-

stituents. As long as we consider instincts as units which cannot be decomposed, we must naturally imagine the heredity of these instincts under the mental picture of a mysterious clock-work contained in the egg. But as soon as we analyse them, we are confronted with very simple phenomena which make the idea of a mysterious invisible structure as the cause of these instincts unnecessary.

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PAIN is one of the fundamental conditions of progress. Not only do we know the sense of being part of the friction which necessarily accompanies all movement, but as a vital prelude to all possibility of movement. As many biologists who do this kind of work are ignorant of the properties of living matter, and do not tell you that its essential property is the power of responding to stimulation, in proportion to which it will give up its life.

Telch, with a needle point the most beautiful and delicate of tools, and you get absolutely no response; irritate the grayest and flabbiest bit of ditch-water animal pally that you can find, and he moves himself away from the steel at once, motion to avoid the source of pain. He can feel, therefore the touch. And if he feels so all the more able to feel pain as well as pleasure. Nay it is even more important than that the knothole perceives the disagreeable stimulus than the agreeable, for the former needs to be moved away from while the latter does not. I have often capable of only pleasurable sensations and the will be destroyed instead of an hour's pain, again becoming all in this earliest form the power of sensation and of responding to impressions are combined in the same cell, but as the organism becomes more complex, more extensive and powerful movements are called for, and special cells are set aside for contractile purposes alone, leaving to the surface cells the duty of sensation only. Later it becomes not merely a question of escape but also of retention, and a great effort to combine the muscle strands in orderly rhythmic movements is needed, and the ganglion brain is called into being. In the measure the surface cells have been doing the work of feeling, slowly themselves have educated themselves to catch the finest variations in the light rays,

As long as we consider instincts as units which cannot be decomposed, we must naturally imagine the heredity of these instincts under the mental picture of a mysterious clockwork, controlled in the egg. But as soon as we analyse them, we are confronted with very simple phenomena which make the idea of a mysterious invisible structure as the cause of these instincts unnecessary. It is only a matter of time before we shall be able to trace the heredity of instincts back to their physical basis.

## THE VALUE OF PAIN.

**P**AIN is one of the essential conditions of progress. Not merely in the sense of being part of the friction which necessarily accompanies all movement, but as a vital precedent of all possibility of movement. Ask any biologist what is the first and most important property of living matter and he will tell you that it is "irritability," the power of responding to stimuli or impressions. Touch with a needle point the most beautiful and brilliant crystal and you get absolutely no response, turn to the grayest and flabbiest bit of ditch-water animal-jelly that you can find and he moves himself away from the steel at once.

He can feel, therefore he lives. And if he feels at all he must be able to feel pain as well as pleasure. Nay it is even more important that he should perceive the disagreeable stimulus than the agreeable, for the former needs to be moved away from while the latter does not. Leave him capable of only pleasurable sensations and he will be destroyed inside of an hour.

In this earliest form the powers of sensation and of responding to impressions are combined in the same cell, but as the organism becomes more complex, more extensive and powerful movements are called for, and special cells are set aside for contractile purposes alone, leaving to the surface cells the duty of sensation only. Later it becomes not merely a question of escape but also of retaliation, and a central office to combine the muscle-strands in orderly military movements is needed and the ganglion-brain is called into being. In the meantime the surface cells have been dividing up the work of feeling among themselves, some have educated themselves to catch the finest variations in the light-rays



some confine their entire study to the sound-waves, others to the changes of temperature, while the vast majority of them simply refine upon their original powers of contact-perception or touch. Thus out of the simple possibility of discomfort arise the five senses, their muscle-standing-army and their joint judicio-executive brain. Pain is the mother of the mind, and muscle is its father.

Nor can this powerful factor in the creation of the body-organism be permitted to "rest upon the seventh day," like the Jahveh of Genesis, when its work is apparently completed. The possibility of the continuance of life absolutely depends upon its incessant activity. Cut the nerve which connects any part or organ with the conscious brain and you place it in serious peril at once. Precisely as if you blindfolded a man and then turned him loose in an enemy's country, or as if you cut the wire which connected an outlying military post with headquarters. You may cut the motor nerve which conveys orders from the brain, or, what is equivalent, destroy the "motor centre" of the part in the brain with comparative impunity, as far as the nutrition of the limb is concerned; it loses the power of motion, but even the muscles retain their bulk for a long time in spite of lack of exercise and the general health if the member remains perfect.

But it is far otherwise when sensation is destroyed. The benumbed hand or foot goes stumbling along like a blind man, cutting itself here, burning itself there, rasping its surface against a hundred objects, and from every merest scratch an ulcer forms. So long as all its cells are in health and vigor and can live on the standard rations of the rest of the body, issued to them through the blood-vessels, all goes well, but the moment any of them fall below par from injury or otherwise and cannot notify the central commissariat of the fact, they fall into the plight of a baby trying to live on government rations of hard-tack and salt-beef. That heat and swelling about a wound which we term "inflammation" is merely a forced and special feeding-up of the neighboring cells to enable them to breed rapidly and fill the gap, and while in excess it is a source of danger in itself, in its absence there can be no healing.

Observe it is not the loss of the power to pass the signal "All's well" that is injurious, it is the inability to report discomfort. Not the absence of all sensation, but the absence of painful ones that is fatal.

For instance, in paralysis of the aged, one of the chief dangers to life is from the formation of ulcers about the back and hips due solely to pressure against the mattress and hence known as "bed-sores." The peculiar danger of these is first that, sensation being abolished, they will form without the patient's knowledge, and in neglected cases will often attain the size of the palm of the hand and a depth of an inch or more before they are discovered, and second, that communication with the brain being cut off, little or no inflammation occurs and they are extremely difficult to heal. It is no uncommon thing to see them six inches in diameter and an inch deep and yet with scarcely enough inflammatory reaction around them to redden the skin at their edges. This absence of pain and consequent inflammation not only impairs healing-power but also deprives the general system of one of its chief barriers against the absorption of the products of decay, and a fatal blood-poisoning is extremely apt to occur.

A peculiar illustration of the uses of pain is afforded by that dread disease leprosy. Here one of the earliest symptoms is the loss of sensation in a hand and arm or foot while the muscular power is unaffected. Many a victim has first discovered his condition by severely burning or cutting himself without feeling pain. In one dramatically tragic case, a planter who supposed himself in perfect health thoughtlessly caught a heated lamp-chimney which was falling, and didn't know it was burning him until the smell of his scorching fingers attracted his attention! What is the result? In a very short time tiny cracks, bruises, and scratches develop all over the hand or limb affected, these rapidly grow into ulcers and either heal very slowly or steadily deepen until fingers, toes, nay even hands and feet are completely amputated by them, or the limb is so drawn and crippled by the great scars that it becomes almost useless. There are of course active processes of destruction at work as well in the disease, but the greater part of the terrible

deformities of the limbs produced by leprosy are due solely to this negative destruction of sensation and its consequences. In modern hospitals it is found that by keeping lepers in bed, in comfortable wards and protecting their extremities against injury and irritation in every possible way, their lives may be very greatly, if not almost indefinitely, prolonged.

But there is also another way in which pain is of marked benefit in case of disease or injury, and that is by securing rest for the part affected. The agony of an inflamed joint, for instance, is an imperative order to the muscles controlling its movements to keep it perfectly still and motionless. And the order is usually strictly obeyed. So important does nature consider it that, by a curious transference, the pain of a diseased hip-joint, for instance, will be felt by the sufferer in the knee and ankle, so as to keep the whole limb at rest. This function of pain is beautifully illustrated in the lower animals. A broken leg in a dog or a deer, for instance, will be so carefully protected against the pain of movement, supported against the other limb, rested against the side of the body and swung along with such a gentle movement, with its toe just trailing on the ground, that the results are often equal to the best that we can boast with all our splints and bandages. Truly, pain is nature's splint.

A similar protective influence is exerted over the inflamed lung by the acute distress of pleurisy.

"But," says some one, "what of those diseases in which pain is the principal evil, in which no structural changes can be found in any way proportionate to the agony endured, what of neuralgia, of blinding 'sick-headache,' of sciatica? Is not the pain the disease in these cases?" By no means. It cannot be too emphatically asserted that pain always *means something*. It does not occur simply as an accident of chance, still less for the purpose of developing patience, or as a "means of grace," but as a pointed reminder that something is going wrong. Neuralgia is the cry of the nerves for more sunlight, "sick-headache" a protest against eye-strain. In themselves comparatively harmless, as danger-signals they are simply invaluable. Hence the seeming paradox, that those who

suffer most, often live the longest: the sensitiveness of their nerves absolutely compels them to halt at the very threshold of danger.

Pain is literally the price of life. And this brings us to the question: "What is pain?" abstractly considered. "What is the difference and what the relation between it and pleasure?" We are all perfectly clear in our own minds on these questions, in the concrete, from personal experience, but how shall we define our conception? On careful ultimate analysis we are driven to the somewhat unexpected conclusion that pain and pleasure are really both vibrations of one and the same chord. That the very sensitiveness which makes the one possible, necessarily makes the other also possible. That the only way to prevent painful impressions, from our environment, is to destroy the mechanism which permits the reception of pleasurable ones. In short, life without pain would necessarily be life without pleasure. The old mythic poets made a shrewd guess at this scientific truth when they described the life on Olympus as "colorless," "joyless," and sang of the "twilight of the gods." And Kipling's prophetic insight has caught the same ray, in his magnificent parable, the greatest poetic conception of the century, "The Children of the Zodiac."

More than this, the two sensations are not merely vibrations of the same chord, but varying degrees of the *same vibrations*. The difference between them is one not of kind but of degree. Almost any pleasurable sensation can be transformed into a painful one by simply increasing its intensity, and many painful ones into pleasurable merely by decreasing their intensity or changing the circumstances.

The instantaneous coolness of a piece of ice placed upon a parched tongue is delicious, but let contact be prolonged only a few seconds and the very same "coolness" becomes intense discomfort. The similar "transformation" of the warmth of a Yule log is another illustration which of course suggests itself. A flood of golden sunlight is the most pleasing sight which falls upon our retina, but throw the rays directly into the eye and a dazzling pain takes the place of the former enjoyment. A gentle friction of the body-surface is an agreeable sensation to nearly every one, but in-



crease the pressure or rapidity a little and it produces a burning pain. The sensation of "sweetness" is so keenly enjoyable that it has become in connexion with "light" a critical synonym for the highest good, and in childhood an abundance of "sweets" or "candy" is temporary Paradise, yet how many adults are there in whom a very few spoonfuls of simple sugar will not promptly convert this delight into loathing, and how few to whom the "over-sweet" taste of glycerine, chloroform, or saccharine is not positively repulsive?

In short, pain is *any* sensation raised above a certain intensity. And even the degree of this intensity varies widely with the individual and the circumstances.

On the other hand, it is well-nigh impossible to draw a line of demarcation between, for instance, the pangs of hunger and the pleasant cravings of appetite, between an intolerable itching and a pleasant tickling sensation, between the joy of longing and the bitterness of "hope deferred."

"But," asks some one, "even granting that pain is necessary, is it not merely a necessary evil, and are not its general effects purely disastrous?" Quite the contrary, the effects of pain in improving and developing both the individual and the social organism have been just as powerfully beneficent as in creating them.

It is, of course, obvious that pain or the dread of it has been the chief factor in the development of the means of escape from it, and of the myriad mechanisms in beast, in bird, and fish that subserve this end. It is no mere coincidence that the most timid creatures are also the fleetest, the trout, the deer, the hare, the swallow, for instance, while their fleetness again is the only thing that enables them to afford such rare beauty of form and coloring. The fin of the fish, the wing of the bird, the legs of the deer, owe their development in large measure to hunger and fear.

There is also a pretty direct connexion between the sensitiveness of animals and the degree of their intelligence. The indifference of the turtle to pain is largely concerned with his limited cerebral capacity, the thickness of the pig's hide is a good index of his

mental power, and the stupidity of the sloth is closely connected with the dullness of all his perceptions.

But it is when we come to consider the potency of pain in social development that its value stands out most clearly. The earliest political unit is a group formed for mutual protection against hunger, cold, and wild beasts. Danger compels men to herd together, and all the social virtues are fostered by it.

The rowels of nature's most powerful spur, hunger, are continually reddening the flanks of the primitive community. The Apostle's scathing arraignment of the Cretans, "whose god is their belly," would literally apply to every savage tribe—and many a civilised one. Hunger is one of the mainsprings of progress. At its imperative command the flint was chipped into the arrow-head, the dart, the spear. In its honor the net was woven, the hoe was made, and the soil broken. To appease its cravings the wild-bull is broken to the yoke, the forests are felled, the ditch is dug through the marsh.

On its errands the ship is launched on the perilous deep and the band sent out upon the war-path. Into its service have been impressed the winds of heaven; the steam-wreaths of the cauldron, and the glittering shafts of the lightning. It is the real Aladdin's lamp of civilisation. The ceaseless westward flow of the human stream and march of the "star of empire" has been at the behest of its Genii. Whether it be born of a barren soil and a cruel sky or of the pressure of over-population, it has played a leading part in moulding the destinies of the nations.

In the fall of every world-empire from Assyria to Rome the conquering race has invariably come from a mountainous or barren land, or from a sterner sky.

And still to-day the nations of the bleakest belt of the temperate zone, where the struggle with soil and climate is severest, the Scotch, the English, the Dutch, and the North-Germans are over-running the whole of the inhabitable globe and bid fair to far outdo Alexander by more peaceable and far more stable means.

To what is the Scotchman more deeply indebted for his world-renowned, "long-headedness," enterprise, and frugality than to his

stony soil, his barren muir-lands and his "dour" climate, to say nothing of the kilted Highlander on one side of him and the English guager on the other? Have the dogged perseverance, the quenchless love of liberty, and the sturdy honesty of the Dutchman which have written him such a brilliant record on the pages of modern history no connexion with his ceaseless struggle to beat back the cruel tooth of gray old ocean from his hearth-stone? An old historian has quaintly suggested one reason for the extraordinary exploring-enterprise of those matchless old sea-falcons, our Viking ancestors, in the statement that they were "certaine of lighting upon no moe cheerlesse place, than that whence they sette forth."

Indeed it is almost an axiom of anthropology that the white race cannot flourish where the snow never lies. Below a certain degree of latitude it invariably degenerates. The stinging kiss of the Frost-king is absolutely necessary to the perfect development of the blood-red flower of Aryan civilisation.

In fine, hunger, cold, and poverty are veritable blessings in disguise, and even to-day prompt a large proportion of our productive activities. There is the soundest physical basis for the spiritual beatitude, "Blessed are the poor."

Are the benefits of pain limited to the purely physical, the commercial, and the military aspects of man's development? Far from it, for in the intellectual and moral realms its laurels are brighter yet. I venture to claim it as the very father of science. The earliest dawn of knowledge in the mind of our primitive ancestors was a recognition of the healthfulness or harmfulness of all objects as articles of diet. A knowledge gained by bitter experience. To this day a baby's first and chief criterion of everything about him is his mouth. Into that rosy opening is thrust impartially, just as far as it will go, everything that his chubby paws can clutch from the contents of the coal-bucket to the painted monkey on a stick. And his earliest mental concept divides the universe simply into two divisions, that which tastes nice and that which does not.

Some of you may have seen a picture by the idealist Watts

which represents our first parents seated side by side upon a sunny sea-beach. A number of empty clam, oyster, whelk, and other gaudily colored sea-shells are strewn about them, the evident remains of a primitive "clam-bake" in which the couple have just been indulging. There is a pained and regretful expression upon the countenance of the man, and he presses his hand over his distended stomach in a most expressive fashion, while his wife watches him in surprise and uneasiness. Some of the shell-fish have evidently been out of season or of a poisonous variety. The title of the picture is brief but expressive: "The Birth of Experience." And after some such fashion unquestionably did human experience and human wisdom begin. And more progress was due to the bitter episodes than the sweet, for the impression made by them was incomparably deeper. The school of experience is proverbially a "hard" one, and "sadder but wiser" has become a household word. Literally "the fear of the Lord is the beginning of wisdom." Just as most of the implements of peaceful industry were originally weapons of war, so many of our most valuable scientific discoveries and inventions have their origin in the bitter stress and makeshift of acute discomfort. For instance our entire knowledge of the structure and workings in health of this wonderful body of ours had its birth in the study of its condition in disease. Pathology is the mother of both physiology and anatomy. By a singular oversight several of our organs are still described in our text-books to-day not as they appear in health or during life but as they appear after death or in positively diseased conditions. For so many centuries our attention had been called to them only when diseased or upon the post-mortem table that we had unconsciously come to regard these as their normal appearances. The first and only thing that induced primitive man to concern himself with his interior arrangements was their causing him discomfort. This discomfort whether apparently primary as pain or fever, or secondary as hunger or frost-bite, was promptly set down as due to the activities of more or less numerous evil spirits. To cure these evils it is necessary to appease the spirits; sacrifices are made, and a ritual is born. Thus the earliest gods of the race are deified discomforts. And the Je-



hovah of Decalogue, the "angry god" of the Puritan still bears sad but distinct traces of his origin. A distinct class quickly springs up whose sole function it is to propitiate or even at times repel these troublesome influences. This caste, formed for the simple but comprehensive purpose of relieving discomfort or averting disaster, both individual and tribal, is primarily medical in the broadest sense of the term. Not only is personal healing required of it, but also state medicine, sanitary science in the widest sense. But as most of the disturbances he is confronted with are attributed to spiritual agencies, his work rapidly takes on a priestly character as well. The shaman, conjurer, rain-doctor, or voodoo is neither priest nor physician—but the common ancestor of both, as his Indian name of "medicine man" indicates to this day. And from this singular and oft times grotesque individual spring not only two out of our three "learned professions," but also, incredible as it may seem, most of our scientists as well. Thus part of the bitterness of the warfare between theologians and scientists may be accounted for on the ground that it is a family feud. To aid him in the individual part of his duties, the relief of aches, of fevers, of dysenteries, our physician-priest presses into his service the herbs, the roots, the berries of the surrounding copses, or the mineral earths of the cliffs, and from these crude beginnings botany and chemistry with their descendants' biology and geology are born. To this day a number of our common plants still bear the names given them from their supposed medicinal virtues: such as "boneset," "liverwort," "sorrel" ("sore heal") "feverfew," etc. For assistance in the tribal part of his functions, the prevention of drought, the securing of plentiful crops, and assuring against defeat in battle, he naturally appeals to the only heavenly bodies visible to him, and astronomy with its daughters, physics and navigation is brought into being. Many if not most of our best known stars and planets still bear as scientific titles the names given them when prayed to for aid, or used in the construction of horoscopes.

Even as the greedy quest of the philosopher's stone led to many an invaluable chemical discovery far more "golden" to the

race than the discovery of its object would have been, or as the wild and eager search after the fountain of youth developed continent after continent of undreamed-of richness and beauty, so the desperate shifts and vigorous efforts to escape the sharp spear of pain have won for the race a knowledge, a power, and a happiness beyond their wildest dreams.

As to the uses and value of pain in the moral realm, these have been so fully and constantly insisted upon by prophets of every creed that nothing more than the merest allusion is needed here. Indeed its importance has, if anything, been exaggerated, but even upon the soberest view of the subject it must be rated very high.

For instance it is obvious that without pain or the possibility of it there could be no true courage, no patience, no self-denial or devotion, without hardship, no endurance or fortitude, without tribulation, no faith.

It is not too much to say that without suffering no true character or virtue could be developed any more than muscle and vigor without hunger and cold; that the choicest of the saints are and ever have been "they that have come up out of great tribulation."

Pain is by no means the only or even the chief influence in moulding the destiny of man, indeed as our next contention will be, its antithesis, joy, is equally necessary and even more potent, but it is the keen and biting chisel under whose edge alone can the figure of the perfect man be hewn out of the lifeless marble.

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instincts—extremely variable and complex instincts, scarcely more consolidated than the paternal instinct, yet one which has given rise to a multitude of animal societies from the primitive and negative stage known as indifferent assemblages up to a form which already reaches a high plane in the Gynæceum and the Cœporum. We have seen the variations of these societies. Some are gregarious, others are solitary, others are formed of families, others of colonies, others of societies, others of nations. **MAN AS A MEMBER OF SOCIETY.**

### PART III. OF THE SERIES SCIENCE AND FAITH.

**O**UR INTRODUCTION to the present chapter has been long.<sup>1</sup> It could hardly have been otherwise, seeing that we presented there the broad initial thesis that man is of the same nature as the other animals and subject to the same laws, and that the points wherein he differs from the nearest mammals are only matters of form and of degree.

One of the propositions which resulted from our inquiry was this: impressions engender acts, dependent or not dependent upon the will; these acts by repetition become habits, which are handed down from generation to generation, and becoming established form what are called instincts. We have followed the evolution of three of these, viz.: (1) the instinct of self-preservation,—that self, which in the invertebrates is represented by scattered egos or by egos that are predominant at certain points, and which in the vertebrates has its seat in a special organ and is centralised in a single ego of which the physiological characteristic is egoism; (2) the instinct of reproduction, differentiated in the birds and mammals into the sexual instinct and the family instinct, which latter in its turn is differentiated into a maternal instinct highly consolidated and free from all impurity, into a paternal instinct feebly consolidated and complex, and into a filial instinct maintaining a mean in the matter of consolidation and purity; (3) the social instinct which

<sup>1</sup> See *The Monist*, Vol. VI., No. 4, Vol. VII., No. 2. Translated from Dr. Topinard's manuscript by T. J. McCormack.

has for its foundation the need of relations with one's fellow beings, or altruism—an extremely variable and complex instinct, scarcely more consolidated than the paternal instinct, yet one which has given rise to a multitude of animal societies from the primitive and negative stage known as indifferent assemblages, up to a form which already reaches a high plane in the *Cynocephali* and the *Cercopithecii*. We have seen the variations of these societies. Some are intermittent, others are permanent; some are of the family type, pivoting about a polygamous male, others are formed of families more or less amalgamated.

We have now to continue our inquiry with man. The field is quite different. With wild animals,—the only ones we were obliged to consider,—our information was as a rule insufficient. We were fortunate if we were able to reconstruct the approximate social type of the genus or the species. It was impossible for us to consider the variations according to groups, environments, and *a fortiori*, with few exceptions, according to periods. The question of the evolution of social forms throughout the course of centuries was inaccessible. With the exception, perhaps, of the bees and the ants, science can establish the sociology proper of no animal. With man it is different. Although all the knowledge we might wish is not always forthcoming, yet generally speaking it is considerable. Man speaks and can personally give us information concerning his manners, customs, and sentiments. He has his history, his archaeology, and his legends. He is spread over the whole surface of the globe and divided into an infinite number of groups, frequently having no communication with one another. In his case the problem is no longer that of describing a social type, but of describing a multitude in time and space, where it is our task to determine both the differences and resemblances. Human societies give rise thus to a human sociology proper if not to a comparative human psychology, the scope of which is broad and which involves an endless number of problems. Let us recall the position which this science occupies in the general body of human knowledge.

The second branch of anthropology is divided into two parts :



first, descriptive anthropology, or ethnography, in which the facts are gathered and classified according to two methods, by tribes or nations, and by particular subjects; secondly, speculative anthropology, or ethnology, in which are established the concatenation of the facts so reached, their causes and consequences, and the laws or general truths which flow from them.

Similarly, human sociology is divided into sociography and sociology properly so-called. It occupies itself particularly with the facts gathered by ethnography, as these bear upon the family, society, and morals. It studies in man the associations between individuals free to move and to act, just as in invertebrates we study the associations between the merids or zooids that adhere together. A third part is the complement of the foregoing—social science, that is to say, the applications of sociology to the present phases of human societies, which it is incumbent upon us to correct and to perfect, or, as some say, to remodel, so as to secure the greatest happiness of all or of nearly all consistent with the greatest possible equity. The present article will deal with the first and second parts.

What was man at his origin? How were his first societies constituted, and how have they been evolved, in attaining the present phase? Such are the questions on which we shall have to dwell.

Thus considered, the history of human societies is arbitrarily divided as follows: (1) primitive societies in the true sense of the word; (2) prehistoric societies; (3) the lowest savage societies as yet discovered; (4) the more or less barbarous societies; (5) the more or less civilised societies of Central America on the one hand, of China, India, and Egypt down to Greece and Rome on the other; and (6) societies subsequent to the Christian era down to the present.

Darwin, Spencer, and some others, have sought to reconstruct the primitive man. To start with, he has been progressively formed at one or at several points of the globe at the expense of one or of

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Dr. Daniel Briston has excellently remarked: "It is the aim of ethnography (*étnos*, people, and *γράφειν*, to describe) to depict, and that of ethnology to explain."

several precursors. According to the first hypothesis, he was subsequently differentiated into branches which, to judge from the morphological facts in our possession, may be reduced to five or to nine at least, viz.: (1) the blacks with woolly hair, divided into the dolichocephalic and the brachycephalic; (2) the blacks with straight<sup>1</sup> hair, designated by Huxley as Australoids; (3) the yellow races divided into the dolichocephalic and brachycephalic; (4) the browns or Melanochroids of Huxley, small and dolichocephalic; (5) the blonds or Xanthochroids of the same author, large and dolichocephalic. Both hypotheses are tenable, but that of the unity of the types is the most probable. All the primitive varieties of the human species may be said to have been produced by differentiation, adaptation, and crossing in the same manner as the present varieties of the domestic dog according to the palæontologists are sprung from the *Canis familiaris fossilis*. The initial progenitor is said to have been black, dolichocephalic, and prognathous.

The characters which essentially distinguish man from the anthropoids are four in number (*The Monist*, 1895, Vol. VI., pp. 33-44), two of which are physical—perfect adaptation to the vertical posture, and a greater development of the brain in volume, convolutions, and inward structure—and two of which are physiological: speech and reason.

We say reason so as to conform to usage. In reality, at the beginning it does not deserve that name. The animal species, from whose bosom primitive man has sprung, presented, like any high or low group of present men, a scale of very extensive variations. There were found here incapable individuals, absolutely refractory to new acquisitions, indifferent individuals forming the large majority, and finally, individuals evincing some endowment and talent. The latter were the most active, remembering best their sensations and their prior acts, and seeking the hardest to understand things. Some fact attracted their attention, they stopped to consider it, compared other prior facts with it, drew from their comparison

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<sup>1</sup>The word "straight" is ill chosen but is consecrated by usage. The word "yellow" has the same fault.

some relation, some view of the whole, and acted with a more exact notion of the consequences of their acts. One of the highest faculties of certain monkeys, if not of the majority, is the eager persistency with which they scrutinise an object that has been put into their hands, and keep turning it over until they have gotten clear concerning its ways of working and its use. (Romanes, *Animal Intelligence*.) They then throw it aside and give it no more thought. Primitive man goes farther here. Where a monkey opens a nut with a pointed object, or breaks it with a stone, repeating his act with little improvement, primitive man essays to manufacture some similar pointed object or to make of the stone a hammer. Attention to things which directly concern the satisfaction of his needs, the desire to appropriate these things to this end, and the initiative which he takes, are the characteristics of his first cerebral acquisitions. The ape, his precursor, or the dull primitive man, abandons himself to his hereditary habits, that is to say, to routine. Talented primitive man modifies his conduct and profits by his experience. The making of tools or of improved means of defence against wild animals was without doubt the first step taken by man in the domain of intellect. I believe the discovery of the means of obtaining fire was not made until sometime later. Among the lowest savages we know of, we find legends relating to this discovery, but none concerning the origin of the simplest weapons. Subsequent progress must have been slow. To judge from the lowest savages of to-day, primitive man showed little foresight. His horizon in countries where congeners were scarce was almost limited to the animals with which he struggled. His needs were mediocre. The excitations which later exercised so great an influence upon the development of his faculties were almost entirely lacking. Yet selection, despite these circumstances, was still at work. The individuals who were best equipped with the power of initiative survived and multiplied. The day came when those who knew how to put to its best use the new instrument which they possessed, the embryonic intelligence which had formed in them, came into the majority and were formally distinguished from the species which had given them birth.

The question has been raised as to which was prior, primitive language or primitive reason. Every impression or sensation tends to give rise, in the absence of attention being directed to it by the ego, to a simple or complex reflex action, in the last case anteriorly co-ordinated by habit. To this class belong the gestures and contractions of the facial muscles accompanying actions, voluntary or involuntary. Thought, by itself, awakes such reflexes. We half shut our eyes, the face expresses joy or pain, the body bends, the hands are unconsciously extended in different directions, as if to deliver the thought. From this point the step is not far to expressing emotions and desires voluntarily by gestures, and even to varying them in particular cases. Gesture language necessarily preceded every other. The physiological analysis which Ribot has given corroborates this position. The imperfectly developed gesture-language of the Australians and the very highly developed gesture-language of the Indians of North America are survivals of it. It had long to supply the needs of primitive man and to contribute to fixing and multiplying his first elementary ideas and particularly his first emotions, but sooner or later it led perforce to the word. Lacking the word, animals possess the general faculty of expressing their needs, sensations, and sentiments in various ways. These ways vary in form and number with the species. Many have three, five, or ten ways, according to what they wish to express. The majority, if not all, are simply co-ordinated reflex acts, some of which are unconscious and others of which are voluntary or alternately unconscious and voluntary. It is quite natural, therefore, that primitive man, as his gesture-language became more precise, should have made an effort to accompany it with sounds in some way connected with what he desired to express. Unconsciously at first, and then consciously, he modulated his utterances by his larynx, and then progressively articulated them with his mouth. He thus soon attained the power of calling in moments of danger, of commanding in the management of his household, or in the chase, and even of recounting during the evenings his adventures after the manner of the howling monkeys, but better.

The power of the spoken word having been once acquired, the



development of mind advanced more rapidly, hand in hand with the development of language. Although words do not engender ideas, they have upon them a powerful influence. They fix them, render possible their classification, and aid thus in the acquisition of new ideas.

In fine, primitive man did not for a long time greatly differ from the animal, be it ape or anthropoid, which was his precursor and from which he sprung. From the animal stage he drew away but slowly. What was he then, from the point of view of family and of society, during the interval between the period when he was definitively formed and the period represented by the modern savage? For the psychical characters we might consult the infant, on the principle which is true in its generality, that ontogeny is a reproduction of phylogeny; but this is not our subject. In conjecturing what were their customs, we should be guided less by present men, who are all more or less modified and perhaps falsified in their habits by circumstances, than by the animals to which primitive man bears the most resemblance.

First, how did primitive man comport himself with regard to reproduction? Did he restrict himself, as is possible, simply to combating his rivals when seeking the female of his choice, to satisfying the needs of rut, and then departing after the manner of many other mammals? Or did he prolong the union until the birth of the young, until weaning, or until after the rearing only, as it is said certain orangs do? Or, did he prolong the union until he had several offspring, that is to say, indefinitely, as some gorillas certainly do? Was he monogamous as is the Soko of Livingstone or polygamous as certain chimpanzees are said to be? As to sociability, did he live alone with his family as is sometimes the habit of the anthropoids, or in small associations of distinct families as is the case with the Soko, or in large societies, as undoubtedly the anthropoids do when they are numerous, and as do also the Cynocepali and the Cercopithecii? This we cannot say exactly.

As for ourselves, in consideration of the varied habits of the anthropoid, and in consideration of the nature of man generally, such as we know him, we think that his social and family types

were not everywhere the same and depended on habits unconsciously contracted, but that generally speaking he was rather monogamous and distributed into social groups. Do we not see him even to-day accommodate himself to all systems? Several considerations corroborate this view. On the one hand, man is even more influenced than the other mammals by the development of those elements that make for sociability and for companionship with his fellows. He has need of loving associates, he is fond of domineering and of displaying his talents, he has need of talking, of singing, of playing, of being listened to and admired. All this is as strongly developed among the lowest savages as among civilised men. Negroes love to laugh, to play the buffoon, to lift their voices: it is the small coin of altruism as of sociability.

On the other hand, man is possessed of more or less motives which impel him to egoism. He reviews his acts, their advantages, and their disadvantages. His reason causes him constantly to vacillate between two tendencies: the one of associating with his fellows for the advantage which he expects to derive therefrom, and the other of entirely dispensing with them, of eliminating their competition.

His conduct, therefore, will differ according to the circumstances. In one place, where climate, abundance of nutrition, and the absence of dangerous enemies render life easy, primitive man ought, after the manner of herbivorous animals, to be gentle and disposed to living in society. In another place where existence is difficult, the means of subsistence scarce, ferocious animals numerous, himself naked and in addition poorly armed, always upon the *qui vive* against surprises or against the possibility of letting slip good opportunities—here he is or was in the position of the general run of the Carnivora and must have lived a life of seclusion, having as his retreat and that of his family some hidden cave, like the lair of the wild animals which were his prototype.

In fine, we may conclude that primitive man was neither better nor worse than the other animals, and in particular than the apes; that he was neither more sociable nor less sociable and that he had

different habits according to the circumstances; the most widely spread tendency being monogamy and life in little bands.

It is unnecessary to mention that no primitive type has come down to us. The six or seven so-called primordial races which we assume are only probabilities, induced from those which we have observed to-day, mixed, crossed, married and remarried, ten, twenty, or one hundred times perhaps. The races which must have approached nearest to the type in question are the prehistoric races, —but which? For lack of others, let us look at those of Europe—the only ones that are at all known.

If we accept the conclusion generally admitted in the United States regarding the end of the Glacial Epoch in the region of the Great Lakes and the approximate parallelism of glacial phenomena in America and Europe, the most ancient authentic remains of human industry in the latter country would not go back to more than 10,000 years about. That is not much. It would then be necessary to divide this space of time in Central Europe approximately as follows: the Palæolithic Epoch, 3,500 years; the Neolithic Epoch, 2,500 years; the Bronze Age, 1,800 years; the Iron Age, 300 years; the Christian Epoch, 1,900; total, 10,000.<sup>1</sup> We must draw the conclusion that the most ancient race of men we know of in Europe, that of the glacial alluvium of Chelles, cannot be primitive, and therefore that it took its origin elsewhere. At that moment in fact a formidable barrier of ice descended from Scandinavia not far from the Hartz Mountains and the Black Forest, and joining with the glaciers of Switzerland and Upper Italy left only narrow passages, which greatly restricted communications with Eastern Europe; whilst on the other hand on the South communication with Africa was quite easy by way of several strips of land which have since disappeared. It has been assumed that the men of Chelles, that is to say, of the first Palæolithic Epoch, were of the Neander-

<sup>1</sup> I suppose it is well understood that for us the origin of man is older than ten thousand years, but that it must be searched for in other parts of the world than those alluded to in the North of the United States and in Europe.

thal race. The assumption has not been proved. The number of pieces upon which it has been based is ridiculous. I am more inclined to believe that the Palæolithic Race of Chelles was that which we find later on, small, brown, dolichocephalic, extremely orthognathous, and with microseme orbits, spread through all Southern Europe, the isles of the Mediterranean and Northern Africa, and which I have called the Troglodyte race of the Lozère, or better, the Mediterranean race. Evidently it came northward, step by step, from Africa subsequent to the Glacial Epoch, that is to say, from the country where recently in the South of Tunis enormous quantities of Chellian<sup>1</sup> quaternary instruments have been discovered, and where five or six thousand years before our era the scattered tribes circulated that gave rise to the Egyptians, a race of a type still far removed from what the primitive type must have been.<sup>2</sup>

But nothing enables us to say what were the customs of the Chellian race. Its well-fashioned weapons lead us to believe that it manufactured other utensils which have not come down to us.

In the Post-glacial Epoch, with the Reindeer or Laugerie period, the elements of valuation increase. The men of that day lived partly in families in separate caves, partly in small and large aggregations in neighboring caves, or under long shelters beneath overhanging rocks. Although hunters and fishers and without agriculture, they were sedentary, fashioned implements of bone and flint, which they decorated somewhat artistically with the figures of animals, plants, and even of men. They had ornaments and funeral rites, as M. Cartailhac assures us, and procured the articles they needed from considerable distances; at times they undoubtedly exchanged them for others, and they certainly had chiefs. At Solutré, where they lived in villages, they appear to have had reserves of horses for food. In shaping their images and in chipping their pointed flints, they evidently conversed and indulged in the ameni-

<sup>1</sup> René Collignon. *Les âges de la pierre en Tunisie*, in *Matériaux pour l'Hist. Prim. de l'homme*. 3me Sér., T. IV., 1887, Paris.

<sup>2</sup> We willingly admit that the type of Java, Neanderthal, and Spy is one of the primitive types of man—scattered over the whole habitable surface of the globe at a certain epoch but accidental in Western Europe.



ties of friendship. Nothing proves that the wound of the woman of Cro-Magnon was the result of a conjugal quarrel. In a word, they had a social organisation which they must have brought from Western Europe and which precludes our regarding them as savages of a low type. At this juncture the barrier of ice had disappeared, and new men of high stature, dolichocephalic, and probably blond, had crossed the passage. For us, the type to which the name of the race of Cro-Magnon has been given is a crossed race, the result of a mixture of the local Mediterranean race of which we have spoken above, with the tall blonds who came as conquerors. In the Neolithic Epoch which followed, the number of blonds increased; another race, the brachycephalic, was added, which came by the same route. Thereafter the population is divided into groups differing both in physical characteristics and in civilisation. In one place we have the Troglydites of the Lozère, the most ancient race, a poor and conquered people, who had been forced to take refuge in the least accessible localities. In another, we have the blonds more or less crossed, the makers of the long megalithic monuments. The brachycephalics are scarcely ever seen to predominate at any one point, which may be accounted for by the fact that they practised cremation. One of the most pronounced of the later groups is that of the Palafites of Switzerland, among whom we see the Polished Stone Age pass into the Bronze Age, and where agriculture and industry are considerably advanced. We shall not stop here; the knowledge we might gather can be more readily gained in connexion with the populations that come later. We may confine ourselves to stating that with the exception of the refugee groups of the small-statured race, which led a really savage life as a whole, the Neolithic Epoch bears witness to a civilisation which is considerably advanced as compared with the epoch called barbarous. Vestiges of superstitions (amulets of human bones) and even of worship (the caves of Baye, etc.), if not of religion (the cromlechs and *alignements* of Brittany) are also found.

<sup>1</sup> P. Topinard, *La Caverne de Beaumes chaudes, d'après les registres de Broca*.—*Revue d'Anthropologie*, Paris, 1886.

Let us now pass to the lowest savages known to us, such as they are represented by the historians of antiquity, the travellers of the sixth to the thirteenth century to the time of Marco-Polo, the navigators and foreign conquerors from Christopher Columbus to the end of the eighteenth century, and particularly by the travellers of the present nineteenth century. These descriptions gradually conduct us to the highest savages and from these to civilised man.

In the second half of the eighteenth century the ethnographical movement began to make itself felt. The first work in this direction was, we believe, that of Henry Home or Lord Kames, a philosopher of the Scotch school, who published in 1773 two volumes entitled *Sketches on the History of Man*.<sup>1</sup> The first society was that "for the observation of man," at Paris in 1799. The first "instructions to travellers" were those which were published by that Society in 1800.<sup>2</sup> But little progress was visible until the foundation of two other societies now well known, the Ethnological Society of Paris in 1839, by W. Edwards, and the Ethnological Society of London in 1840, by Prichard. The decisive moment, however, came in 1888 when Messrs. Tylor and Galton applied to the analysis of the manners and customs of peoples the statistical method employed in physical anthropology. To-day ethnology is one of the most popular sciences. England and the United States hold the first place in it by the number and the value of the contributions which they have furnished.

The published works are of four kinds: original matter consisting of descriptions of travellers and their classified replies to the "instructions"; monographs upon some single people or tribe; monographs upon innumerable special subjects, such as marriage, property, polity, beliefs, and folklore; and finally works which aim at synthetical views of the field in its entirety. But as is frequently the case with young sciences, inquirers have not been overcautious; premature theories have been promulgated and systems produced

<sup>1</sup> P. Topinard, *Éléments d'anthropologie générale*. Paris, 1885. Vigot frères.

<sup>2</sup> *Revue d'Anthropologie*. Année 1883, p. 132.

which were based upon insufficiently established facts, and which have had to be withdrawn. Still, the light is gradually spreading, and I believe I am not too presumptuous in attempting to sum up now in a general way the results of my reading and researches on the subject of this paper.

The great difficulty concerns the palpable beginnings of the evolution of societies. Here inquirers have been carried away by preconceived ideas or insufficient facts. The ethnographical material relative to the higher savages and barbarians is very extensive, but is absolutely meagre with regard to savages very low in the scale.

When we consult the narratives of travellers we find contradictions. One person who has first seen a given group, sees it in one light; another, coming later, sees it in a different light. A third sojourns a long time with the group in question, examines it more minutely, and, being less hampered by European preconceptions, his description destroys a part of what his predecessors have said. The traveller who travels fast always claims to have seen extraordinary things. He describes savages in the lowest imaginable stage which he knows of only by hearsay.<sup>1</sup> We might almost formulate this proposition: there are no very low savages, except such as we have not had the means of carefully studying. The truth is that there are no existing savages justifying the denomina-

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<sup>1</sup> The following is an example. A certain author indicates as the lowest type of savages which one can imagine, the Guaharibos of the sources of the Orinoco, and gives an astonishing description of them, referring in a note to the Geographical Congress at Havre in 1887. Naturally I ran to the original, but found nothing. I finally discovered elsewhere that at this Congress a lecture had been held by M. Chaffanjon, who had visited the sources. In short, I found a book in which this traveller had given an account of his expedition. It turned out that he had never met one of these indigenous savages; that he had once stumbled upon a camp of seven huts that they had just abandoned; that he had seen a bridge built by them, and that he had derived all his information regarding the indigenous people in question from another tribe who had accompanied him, but who also knew of the other people only from hearsay. In short, putting all together, I found no ground which justified in the least the detailed description which had originally so startled me. I supposed that it had been taken from reporters who had listened to the lecture. See I. Chaffanjon, *L'Orénoque et le Caura*, Paris, Hachette, 1889, and Létourneau, *L'Evolution politique*, Paris, Lecrochier, 1890.

tion of *primitive* so frequently and wrongly used. We have assumed that the oldest Europeans go back ten thousand years, but in other countries man goes back much further. The antiquity of man is certainly to be doubled or tripled, if not more. Think only of all that must have happened in Africa prior to the tribal precursors of the Egyptians; or in India, among the blacks of the jungle, before the Dravidians, whom the Aryans came upon, had made their appearance. The physical type of the Neanderthal, and even of the Java man, is almost as far removed from the probable primitive type in cranial capacity as some normal Europeans of our days are from that primitive type.

The lowest known savages, those that we can make use of, are only the remains of peoples which have had their history and which at a given moment have been driven back into places not sought by others or possessing natural defences. They are degenerate and retrogressive groups from lack of stimulus. Taking the cases singly, the proof can be established. For the Esquimaux the evidence is complete. A tribe, a people, or a whole race, may become immobilised at a certain stage for a long time. China is an extremely remarkable example of this in four or five points of view. Most of the negroes in Africa are another. A tribe, a people, may even fall behind and be at the point of extinction, when suddenly it will assume new life and energy. Ethnography and history offer numerous examples of this, but in the very lowest stages prolonged retardation is difficult; a certain minimum is necessary for subsisting in given conditions. The group dies away as is the case with all the very low, and even with the ordinary savages we know of. They are powerless to recover their lost vantage-ground, and no case of their having done so is yet known. Happily for us, the degenerate groups stand us in excellent stead for reconstructing the probable course of evolution of the first men, for retrogression is by privilege of inestimable value, being a retracing of the steps through which progression has passed.

We shall cite the groups concerning which we have the best information, and which can best guide us in our inquiry.

First we have the Veddahs, who inhabit the cliffs of Ceylon,



and whom we should not confound with those of the coasts and villages, who have been more or less changed by contact with the Singhalese. According to a Greek author of the fifth century, they occupied the forests they now inhabit, for 1500 or 2000 years. According to the census of 1881 there were only 200 of them still alive.

Secondly, there are the Bushmen of the desert of Kalahari who are one of the southerly scattered fragments of a race formerly spread over a good part of Central Africa of which the Obongos of Du Chaillu, the Akkas of Schweinfurth, the Wambutu of Stanley, are other fragments. The Obongos are a stage higher in type than the Bushmen and the Akkas several stages higher still. The poisoned arrows of the Wambutu and several details which we have from Sporck who has recently visited them lead us to believe that they are not so low as Stanley thought.

Thirdly, we have the Fuegian Yahgans of Tierra del Fuego, who must be distinguished from the Fuegian Onas and Alcaloufs, who are more nearly related to the Patagonians. They were evidently driven back at some unknown period into the benighted region which they now occupy.

Fourthly, we have the Andamans who have inhabited the islands of the Bay of Bengal from the year 851 of our era at least, and whom anthropology regards as the most typical representatives of the Negrito race of which other fragments are found here and there in the Malay Archipelago.

It is difficult to establish the exact rank of these four groups. In certain traits they are lower, in others they are higher. The Veddahs seem to come nearest the primitive state.

Next come the Tasmanians, a race which has recently become extinct and which we can only appraise by information which dates anteriorly to the time when the English began to exterminate them.

Then we have the Australians, which have long been placed at the lowest stage but which are now ranked several degrees higher. But here and there in the ancient reports we have accounts of iso-

lated groups which poor conditions of existence had rendered inferior.<sup>1</sup>

There are also the Esquimaux who formerly extended far South to the boundaries of the United States on the one hand and into Asia on the other, whom warlike tribes drove back into arctic regions and who to-day are disappearing.

We shall merely refer to the few extremely savage and not well known groups of the interior of the isles of Northern Melanesia, of the Sunda Archipelago, of the Philippine Islands, and of the Peninsula of Malacca. In the Deccan, the Ghats, and the Nilgiris, we have found nothing that can serve us. I must say the same for Siberia. In America the lowest savages after the Fuegians are probably the Botocudos of Brazil and certain tribes of Yumas of Lower California. In Africa nothing is to be added to the Bushmen.

It goes without saying that with the space at our command we can make no citations, nor refer to our authorities. We shall give nothing but a simple picture, dwelling only upon the points which we desire to place in relief.

The lowest savages differ in character, disposition, and manners according to the more or less difficult conditions of existence in which they are found, and according as they have more or less connexion with other men, savages or Europeans, who stimulate or falsify their character. In himself, the savage is usually gentle, kind, of an easy disposition, and with a tendency to jollity. He is honest, does not lie, and attempts to do no harm either to his own people or to strangers. He is sensible to kindnesses which have been extended to him, well wishing, and endowed with a goodly portion of altruism. Distrustful, like animals who see for the first time a creature which they do not know, his second impulse is that of gentleness. Nevertheless, he is quick and violent in responding to impressions and may abandon himself to regrettable acts, but he quickly regains his natural tendency and grants pardon when the offence has not been too grave. Before marriage the girls

<sup>1</sup> P. Topinard. *Instructions sur les indigènes de l'Australie*, Paris, 1872.

and boys come early under the sway of the sexual instinct, and yield to it neither more nor less than in our civilised countries. The savage woman is chaste and modest, although nude. Her parents carefully watch her; she will have one lover or several, or she will be debauched; if in the first case she has a child, public opinion requires that the youth should marry her and take charge of the offspring. After marriage the couple are faithful in the same degree that they are in our modern societies, if not more so. The husband always keeps the same woman. The instance which Darwin cites without mentioning the source is typical. "The cliff Veddahs are monogamous until death," said Bailey to a polygamous Singhalese. "Yes," responded the latter, with a contemptuous smile, "like the Wanderoo." The ape to which allusion was here made, is a semnopithecus of Ceylon. Bailey was a missionary who had lived twenty years with the Veddahs and has described them in the *Transactions of the Ethnological Society of London* for 1862.

The husband repudiates his wife only exceptionally. In case of adultery he punishes her or strikes her, and no one interferes. Marriage takes place without any formality. The young man asks for the consent of the father, and sometimes makes him some small present; the girl is not consulted. Sometimes marriage is not definitive until after conception or the birth of a child. The very low savages are generally monogamous (Veddahs, Bushmen, Andamans, Esquimaux, and the Negritos of the Philippine Islands). But if he feels himself capable of supporting several wives, either from vanity or from finding his interest therein, he becomes polygamous, his first wife in that case retaining the supervision of the household. The monogamous father loves his wife; she is his companion in this social phase, and not his slave. She shares his labors. He hunts, manufactures arms, canoes, and does the heavy work; she has charge of the household and the children, gathers wood, fetches water, and carries the burdens during expeditions, particularly the burning brand which preserves the fire, whilst the husband remains free, ready to take advantage of every occasion the chase offers. When the children are old enough, the boys accompany their father on the chase and learn from him the ways of

gaining their subsistence, whilst the girls aid their mother in the care of the household. The polygamous household is less exemplary, even when the husband is more particularly devoted to one of his wives. His wives rather resemble servants, and the children are less kindly treated. The paternal affection, as in the lion which we have described, does not exist at birth. At this moment the father frequently commits, without the least tinge of emotion, acts of infanticide, either as an economical measure, or because the child is weak or malformed. But when the child has once been accepted, he readily yields to its smiles, caresses it, plays with it, loves it, and carefully discharges all his duties. As to the maternal instinct, it is upon the whole as strongly developed as in the animals, and if at times the mother assists with dry eyes in the execution of her child, the case is rare. Were there not even among the animals examples of unnatural instincts of this character?

The family state is without the least doubt the first pseudo-social phase of man. Families are independent. Each seeks in its own behalf to satisfy the needs of common existence. They are nomads in the good seasons, changing their localities according to their needs in search for food. They sleep and sojourn for longer or shorter periods of time in the places they happen to come into, be it in the hollows of rocks, as did the cynocephali of our last article, or in cavities which they dig, or in huts which they construct from branches. When they meet neighboring families they chat and play together for several days, if their stock of provisions permit it, then they leave each other, each going his own way in search of food. In the bad season they seek slightly better quarters in caves which they know, the different families being installed near each other, provided the conditions of the habitation permit it, yet still having separate and independent lodges.

But the families grow. The boys having reached the age of puberty are solicited by new sensations and roaming about more or less in the surrounding territory they meet the daughters of other families. It is the free love of the young. But some day the youths feel the desire to have a family for themselves. They get married as we have described above, and sometimes proceed to found a



new family, or sometimes remain with their wife and children with their old family, which is thus increased. The families which above accidentally met and stopped to enjoy life together for a while, were likely allies by blood. Sooner or later these intermittent associations become more frequent and prolonged. The company of one is sought more and more by the others, and individual bonds of friendship are established. Circumstances present themselves where they are directly in need of one another's services, either for a general battle or for attacking some large animal. The social habit is thus created in the same way as we have seen it rise among the birds and the mammals. And from this results the primitive or family clan, by two processes: (1) by the direct growth of the family, the children, brothers, and sisters continuing to centre about the oldest father, who naturally becomes the chief; (2) by the spontaneous association of different families living isolated in small groups and forming gradually a general coherent group of relationships of all degrees, even very remote. This is the first phase of social evolution, the family clan.

We have seen that among the animals personal property, family property, and communal property exist. The individual is here master of his prey, of his cave, of his female, and of his young. Some couples establish themselves on the shores of a lake in some rocky or grassy nook and defend its approaches against their fellows. Some bands appropriate a part of a forest or swamp land, or take possession of an entire country, and forbid other bands, like the *Cynocephali* from entering it. Among the very low savages, personal property always exists. Each is the owner of his own prey, subject to the restriction of dividing it upon his return and in the expectation that on the morrow his fellow-hunters will divide their share with him. He is the owner of the beehives which he has discovered and which he marks (a mark always respected), of the weapons which he has manufactured, and of the wife whom he has taken under his care. There is no question of family property at first; there is room for all, and the chosen camp whither they return for the bad season is respected just as is the territory where each family is wont to hunt, all by a sort of tacit agreement without the

interchange of a word. When families unconsciously joined in clans, the merging of property-rights must have been spontaneously effected. The family property of cave or hut was confirmed, the territories of chase became the general property of the clan; agriculture not yet existing, there was no necessity of reserving much ground about each habitation. In sum, it was an ideal life, as Rousseau surmised. If it be admitted that such was the life of the primitive family clan, in nature essentially patriarchal, the question arises, How long did it last? Undoubtedly very long. As long as men were few in number, the means of subsistence easy, and the passions of the members restricted to the clan itself.

But a day came when the population waxed great, when the members of a neighboring clan encroached upon territorial property consecrated by time, when the young men impelled by the attraction of novelty carried away by persuasion or force the women of another clan, when accidents, quarrels, and deaths resulted, when the neighboring clan assumed the right of appropriating a more favored country, etc. Then hostilities broke out, reprisals became rife, and a transitory or permanent state of war succeeded, tacit or declared. At the start, when the allied families who formed the clan were still scattered about in small groups, each defending itself after its own fashion, and without preconceived plans, the father commanded his children and connexions. By force of circumstances, and from having been brought more closely together, some one gave utterance to some advice, showed himself more capable and more brave, and spontaneously assumed the direction of operations. Necessarily he thenceforward preserved some influence in the clan. Later when an attack was repeated and the families were more coherent, some *head-man* was named. The danger past, his powers ceased, but his influence persisted. They selected him as a judge when difficulties and quarrels were to be composed, but without granting to him the right of punishing, which was left to the council of the fathers or elders. Subsequently the nominated chief came into possession of the whole authority, which he partly shared with the council, and with one of those personages who rise so

promptly in primitive human societies, the medicine-man or sorcerer.

The first effect of such hostilities was the tightening of the communal bonds and the awakening of the sentiments of solidarity and of general interest. Each came to understand that it was above all necessary to defend the territory from which he drew his subsistence, that the cause of each was the cause of all. In the homes, nothing was changed. The fathers remained masters of their families, each responsible for the conduct of his own, punishing them at will without heed of others. But towards strangers special customs were formed. Latent evil dispositions were roused, perfidy, theft, bloodshed arose. To do harm to an enemy was an act of merit, a claim to glory. The ambition of the young entering the life of the adult is to become distinguished in this direction, to show to those whom they wish to attract that they are strong and perfectly able to defend themselves. Thenceforth the family clan becomes a political clan. It is concentrated and organised with a view to preserving its integrity as opposed to strangers. This is the first stage of the second phase of social evolution. To become complete it must be organised within, which is the second stage.

The immediate effect, we have said, of having to defend oneself is the strengthening of the bonds of the clan; the second is to alter its customs. The evil dispositions which war awakened, the resulting reprisals and accustomedness to shedding blood has transformed the character of man, who is now no longer the gentle, simple being of the ancient days, accommodating himself to all things and content with his lot, but has grown less patient and more impulsive in the evil sense. His horizon has been enlarged, he thinks more, his character is less frank, he is more active and more turbulent. The inevitable quarrels between the members of the different families grow more frequent, and compel the fathers of the families to interfere. Women are at first the most common cause of dissensions. The senses are not guided by reason, the youth and even the young married men covet the wife or daughter of their neighbor; yet though there is still no civil constitution among savages, marriage is none the less a contract, the woman is the

property of the man, and he will suffer no one to touch her without his consent.

On the other hand the clan is increased, either by the multiplication of the various branches of the initial family or by the admission of strangers or the acquisition of servants. The individuals crowd each other more and more; where there is room for few, it is uncomfortable for many; life grows annoying, each one is inconvenienced; separation and a consequent division of labor set in. Some devote themselves especially to the chase or to fishing, others to the manufacturing of arms and of canoes, others to protecting the women and children. Private property is extended to a larger number of objects, to ornaments, to household utensils, and to dwelling places, crude as these still are. They steal without constraint and even as a point of honor from the enemy; but they do not steal from their own clan—although of course there are exceptions. The natural inequalities begin to be felt: one is strong, another is weak; one is good, another is bad; one succeeds in the chase, in the manufacture of certain articles, the other does not. Character, aptitudes, intelligence, and tastes differ. Some have more influence, are more readily listened to, and possess greater privileges and distinctions. The contrasts grow, characters become more and more confirmed; emulation begins; rivalry and competition follow; in a word, struggling within the bosom of the clan sets in, with all the secret or pronounced passions which it brings in its train: suspicion, trickery, lying, jealousy, envy, and hate. Crimes and murders occur. Superstition aggravates these tendencies; some sinister accident, some disease or death is attributed to the wish or intervention of a person of the same or a neighboring clan, and opinion requires that the death so produced shall be avenged by the nearest of kin, by the family, or by the clan entire.

Then, lest quarrels should be perpetuated forever, and the inward as well as the outward security compromised, usages are established. The chief or council of elders intervenes, settles the differences, judges of the crimes, at the same time seeking to satisfy public opinion, and to forestall the repetition of like acts. Punish-



ment is created, compensation for the injury done, reparation by arms, in a word, established rules set forth the relations of the members of the clans to one another, rules which time consecrated.

The second social phase is complete. The clan is politically organised, both as opposed to foes without and as dictated by needs within. Habits have accomplished all. They have become empirically fixed under the influence of necessity, that is to say, of circumstances, and have spontaneously become rules.

The third phase of social evolution is the tribe. At times the clan increased by dividing up into secondary clans, of which the nucleus was a sub-family; at times several clans united, either from friendship or by conquest, and either preserving or losing their relative autonomy. Subsequently the tribes themselves united, thus forming federations or nations. Thenceforward the resulting concatenation of interests grows more and more complex; customs multiply in divergent senses, some dictated by conscious motives of utility, others by empiricism, many by superstition. The clans or groups come together from time to time, either for concerted action or for amusement, such as dancing and singing together—for example, the Australian *corroborees*. Ceremonies and rites are established with respect to the various stages of life, birth, puberty, marriage, and death. Rules regulating the chase, the gathering of fruits and roots are instituted. A frequent form of regulation is the taboo, that is to say, the forbidding of certain things to be done at certain times, or the eating of certain foods. Each family, clan, or tribe, has its totems, that is to say, its means of recognition, the symbols about which it rallies. Individuals have marks or insignia connecting them with the group to which they belong. They tattoo or brand themselves on different parts of their bodies.

The forms of government vary; the most frequent is the democratic form. A council formed of the fathers, elders, or the most conspicuous, exists in each fraction of the tribe, just as a general council exists for the whole tribe. At times, however, the chiefs or chief rules supreme. There are customs distinguishing each single group, and common customs connecting the general interests of

all. There is rarely pronounced agreement. The higher customs relate more frequently to religion. Punishments are most frequently fines administered in kind, and sometimes consist in corporal inflictions, slavery, or death. Property is divided into personal, family, and communal. The first, and particularly the second, have been extended; the third is the rule, but often with reservation of certain rights for the benefit of certain families and concerning especially the ground about the dwelling-place. We regret we cannot enter into details. We had intended to give here, as an example of the daily life of the first state of this phase, a *résumé* of the excellent work of Mr. Brough Smith on the Australian aborigines of Victoria, and for the advanced stage, a description of the life of the Indian of the United States in general. But we must renounce this plan as requiring too much space. The greatest number of problems which ethnology and sociology are now concerned with, bear upon this third phase. Here, from lack of written documents, inquirers are obliged to seek the connexion of manners, characters, institutions, and ideas entirely by observation, the method of survivals, and logic. We shall revert to some of these problems.

The fourth phase is that of nationalities, that is to say, of federations of tribes or groups of tribes having a central authority, or of political unifications of tribes or of peoples under the sceptre of one monarch, one oligarchy, or even a single democratic representation. The nationalities which we know of, belong to history. They appear in the New World with the empires of Peru, of Central America, and Mexico, and in the Old World with the empires of China, Babylon, Nineveh, and Egypt. They are continued by the Greek municipalities and the Roman Empire, and form a series extending, but little interrupted, to the states of modern times.

The fifth phase would be the present epoch characterised by the tendency to substitute for empiricism in the organisation of societies, the rational and scientific method.

Let us revert to some of the points of the preceding tableau. It involves, as might be expected, many variants, particularly in the third phase.

Our point of departure was man in favorable circumstances, when his character had not yet been falsified. He was kind, gentle, straightforward, disposed to altruism, resembling rather the herbivorous than the omnivorous animals. The Veddahs are typical of this state, then the Andamans. The Bushmen of the time of Levaillant, and the Fuegian Yahgans in unfavorable conditions, are already less simple and candid. I should like to stop an instant at the Esquimaux. They are situated in the worst possible circumstances, in the midst of ice, in a country without vegetation and extremely poor in alimentary resources. But having no competition the Esquimaux has remained kind, frank, and affectionate to his wife, children, and fellows. Although he formerly occupied more favored southern countries, although he occupied a certain rank in the social scale, had chiefs and tribal divisions, possessed beliefs and legends of distant migrations; although he was intelligent, ingenious, possessed of initiative, acuteness, and a pronounced taste for poetry and song, he is to-day in the lowest phase of social evolution, in the primitive patriarchal phase, without a trace of political organisation. The few traits of advanced civilisation which Mr. Franz Boas and others have described among the Esquimaux, are merely survivals. The explanation suggests itself. We have here the type of the human group of which we have spoken, a type not arrested in its evolution, but retrograded from lack of excitation. Its character affords the key. The Esquimaux is apathetic, without reaction, resigned, living from day to day, and without light for half of the year. One is astonished even that he has not passed by adaptation to the state of the hibernating animal. Yet the retrogression has not necessarily affected all the characters and is due to different causes. A tribe of Indians, which Brinton cites, the Snakes, although belonging to a race which had probably raised itself to a higher plane than the ancient Esquimaux, has yet fallen back, from economical motives, to the family phase, without the slightest trace of political organisation. This is another example of retrogression reproducing the phases through which progression passed.

Let us pass to another subject. The long chapter which we devoted to the animal family and which called forth an exposition of the relations of the latter to animal society seems to demand of us a like chapter upon the human family. But numerous works have been published upon this subject, of which the latest expresses perfectly the general ideas to which we ourselves had arrived.<sup>1</sup> We shall consequently be brief.

The initial type of the human family, such as it appears in an analysis of our knowledge of the lowest savages and such as it certainly was with primitive man, is not a promiscuity as has been affirmed but appears just as we have above depicted it. It conforms to what the animals and particularly the apes and the anthropoids led us to expect. Writers have confounded free love outside of marriage with marriage consecrated by formal contract. The family is most commonly monogamous, sometimes polygamous, always patriarchal. The authority in the hands of the father here supplants every other form of social organisation. The father is absolute master, is responsible for all his dependents and punishes them at will. His children bear his name and inherit his property. His authority is generally mild. He voluntarily consults his daughter when he gives her in marriage, sometimes too, his wife. He is not tyrannical. If he takes to himself several wives, one is particularly favored and is his principal spouse. Later when the elder and younger branches have separated or have become subdivided, each father preserves his rights over his own; but the father of the elder acquires a higher authority over the others. Thenceforth two cases are presented. Either the family maintains its primitive form, whatever be the extent of the clan, becoming even more consolidated, as we shall soon see; or, becoming subject to the predominant influence of the clan or the new usages which that gives rise to, it enters upon a deviating course of development of the most unexpected kind.

<sup>1</sup> Westermarck, *The History of Human Marriage*, London, 1891. I could not be too profuse in my commendation of this work. The bibliography with which it closes is admirably complete.



Let us begin with the first case which will oblige us to anticipate a subject which we did not wish to approach until later.

Among the sentiments which animals, for example the elephant, the dog, or the ape suddenly manifest in the presence of a new or extraordinary fact or object, are to be successively noted astonishment, curiosity, and the desire of getting clear as to its character, and, finally, when unsuccessful in this, fear and terror. Such is the case of the dog who seeing the portrait of his master on the wall, stops, looks at it, barks, then flees, returns, barks anew, and retires confounded and with lowered head. Such also is the case of the ape who, seeing his reflexion in a glass, looks around him, seeks to comprehend the situation, and at the close of his efforts runs away, casting glances of distrust behind him. It is the same with man. In the presence of the phenomena of nature and of objects which arrest his attention—the sun rising and setting each day, the lightning cleaving the clouds, the stone which has struck him—he is disturbed and restless, inquires what it means, and receiving no response makes of it, with that faculty which the dog and ape do not possess, a being endowed with life like himself, a supernatural thing. Thence he comes to regard that thing as a fetish, to convert it into a charm against bad luck, to commend himself to it, to address prayers to it. This is the first stage of human belief and sprang from fear, as Petronius has said. Like the child who strikes the object that has injured him, only going farther still, he attributes to objects intentions and an imaginary anthropomorphic power.

The second stage is that in which by mimicking further the resemblance to himself he gives to objects a spirit, a double, distinct from the object itself. This is the animism of Tylor. The savage has remarked that there are in him two beings, the one attending to the ordinary occupations of life and periodically slumbering, the other pursuing him in his dreams, and when awake forcing him often to do deeds which he cannot resist, or revealing itself in conditions which to-day we call pathological. His imagination is struck with the phenomenon and carries him still farther. Not being able to believe in natural and complete death, not being

able to believe that the friend with whom he has lived, the father who has cared for him, has totally disappeared, he supposes that his double continues to exist, that it has made a voyage or excursion in his environment and is still concerned about him. This double he sees with the same needs, the same desires, and the same exigencies as formerly. If something incomprehensible happens to him he attributes it to his double, imagines it irritated. Hence the obligations which he believes he is under to it—first, that of properly interring it with victuals, with arms, and the things which it loved most, then that of renewing these victuals and of making oblations and even sacrifices to it.

Frequently matters go no farther, the recollection of the father is effaced and *a fortiori* of the grandfather, and all those who have preceded him. But at times and that among a great number of savages these oblations are prolonged and frequently even in some of a more advanced state are confirmed and give rise to the cult of manes or ancestors which assumes considerable importance and engenders in the bosom of societies of which these families form part, powerful autonomies.

The eldest son, and, when there are several branches, the oldest in the branch, then the oldest among the survivors, has charge of the offerings and periodical ceremonies in honor of the ancestors. The spot where the latter repose becomes a sacred locality; the dwelling in which they have lived is sacred also. The enclosure where both are situated, marked off by boundaries or stones, becomes the common patrimony, which the eldest responsible son manages in the name of all and is bound to transmit intact or augmented to his descendants. An altar is erected in the habitation, where the fire, at first intermittent, is afterwards made permanent. Rites are established in which the whole family take part and from which the uninitiated are excluded. The son who is in charge of these rites is a veritable pontiff. He wields at once a patriarchal and religious authority over all the members of the family, now become a clan, not excepting the servants and the few strangers who have been admitted into its bosom after complying with certain requirements.

The bonds thus established between ascendants and descendants are mutual. The ancestors cannot dispense with the cult which is due to them. If the family becomes extinct, the common sepulchre no longer has any one to care for it and to celebrate its rites, the manes of the ancestors are cast off and condemned to wander about perpetually. It is to the interest of the latter, therefore, to protect their posterity. Thus the perpetuation of him who has charge of the rites is a paramount consideration. He is obliged to marry, to have children of the masculine sex, to divorce or to take to himself another wife if the necessity arises, to adopt a stranger as his son in the last emergency, in a word, to maintain his line of descent. There are even more extraordinary measures still adopted to stave off the consequences of sterility. In all this the woman does not count. On entering a family she is initiated into its mysteries and renounces that which she has quitted. She assists in its ceremonies, but that is all. Inheritance from one branch to another operates only through the masculine sex.

How extensively is this eminently conservative institution spread? If we examine it closely, we shall find traces of it in a great number of peoples. It existed and exists still in China where formerly the Chinese called themselves "the people of the hundred families" or clans, where the family is still organised upon that basis, under the high authority of the father, with the sanction of the domestic gods.<sup>1</sup> Villages are mentioned here of three thousand souls, forming but a single family. The institution also existed among the Hebrews. The clan of Abraham is a perfect example of it. It existed in India and in all branches, it seems, of the Aryan race, notably in Rome and in Greece where it has been described in a masterly manner by Fustel de Coulanges.<sup>2</sup>

At a distant epoch of history several of these clans or gentes became united, and without losing any of their several characters formed phratries or curiæ, which adopted as their principal common divinity the most renowned and powerful of the clan. But let us

<sup>1</sup> Eugène Simon, *La Cité Chinoise*. Paris, 1885.

<sup>2</sup> Fustel de Coulanges, *La Cité Antique*. Thirteenth edition. Paris, 1890.

take an example from Fustel de Coulanges,—the most celebrated one. Centuries before Athens existed, Attica was occupied by upwards of a hundred independent family clans, each having its chief or pontiff, its domestic gods, one or two usually, and its "clients." Three, four, or six of these clans united and came to form twelve phratries or boroughs. One of these, the Cecropids, inhabited the rock where later the Parthenon was erected, and towards the sixteenth century before our era acquired the supremacy. One day a Cecropid named Theseus succeeded in consolidating the twelve boroughs, and with the assistance of the patricians, or Eupatrids, founded the city of Athens. But this centralisation gave rise to distrust of the patricians, a struggle ensued, the religious and political offices which had been united in one person were severed, the family organisation began to give way, the "clients" were freed, the plebs, that is to say, all persons not included in the organisation, came to the fore, and in Solon's time the organisation itself disappeared. At Rome its history is virtually the same; and no traces of it are found in the laws of Justinian. The right of primogeniture which has persisted in Anglo-Scandinavian societies is its survival.

The second case presented in the primitive paternal family is its deviation under the growing predominant influence of the enlarged clan. This deviation is a step backwards to the less developed family state in evolution, which we met with in the animals and which implies a varying disinterestedness on the part of the male in his family duties. The children are here left to the care of the mother, we have the maternal family.

We have seen that the maternal instinct is one of the most beautiful products of evolution in the birds and mammals, that it is free from all impurity and strongly consolidated, whilst the paternal instinct is an unstable compound involving several elements, one altruistic and the other egoistic, and that the latter frequently gains the upper hand. It is the same in the human species. Of the two needs which assure reproduction, the one, the sexual need, has remained imperious in man, the other, the family need, is subordinated to certain satisfactions, to certain influences. When the



family is small, isolated, in a calm environment, and when its monogamous altruism preserves its entire hold upon the husband, the wife is his companion and the children his source of joy. But when the responsibility of the husband is less engaged, when he is accustomed to regard his wife as a utility, when he becomes polygamous, and when a different interest, that which he has in the clan, distracts his attention from his family interests proper, his paternal interest weakens and gets disorganised. He behaves as does the buffalo, who is more at his ease with his comrades in the herd at large than with his females and young in his own particular herd. Of two things, one happens. If he is eldest in the multiple family of which he forms part, his need of domination is largely satisfied to the detriment of his family. If he is a subordinate, his dominion over his wife or wives and his children is lessened; he takes less interest in the performance of his duties, and gradually comes to see in his wife nothing but a means of pleasure and a breeder of children.

Such is for us the point of departure of the secondary formation of the maternal family in the human species. It is met with here and there in Asia, in the Malay Archipelago, in Polynesia, in Africa, and especially in America. It is in concord with polyandry, which is a plurality of husbands, with polygamy, or monogamy.

An early form particularly noticed in Tibet among the Todas, among the primitive Arabs and the ancient Bretons, is fraternal polyandry, which forms the passage from the paternal to the maternal form. The oldest member of one clan takes a wife from a stranger clan, who subsequently becomes the wife of his other brothers and of their nearest relatives. The first pays at the outset the entire dower for which the others afterwards reimburse him, each according to his share. The causes of this institution rest on considerations of economy, the scarcity of women, or the advantage arising from the concentration of heritages in a single family. Nevertheless, the Toda who can afford a wife all to himself, never lacks one.

Another form of which the Nairs of Malabar are the type, is as follows: the woman remains at home and accepts from the

hands of her relatives from four to twelve husbands, provided they are of the same caste, who jointly supply her needs. In this case the children never know who is their father and can only bear the name of their mother, whilst in the preceding case they had a collective paternity of the same name. What complicates the situation in the case of the Nairs is, that each of the husbands can enter into other conjugal relations of the same kind.

The third is one of the forms of marriage preserved in the Malay Archipelago. The woman remains in the family of her mother where she is engaged in its management. The husband lives and works in the family of his mother. The father is a nearer relative of the members of his maternal family than he is of his own children. The maternal uncle is the chief of the family; lacking him, the eldest son, if he is old enough; lacking both, the mother. The father does not officiate until the mother is dead, and then only while the children are minors.

Other forms are more widely spread, but are extremely variable. In Australia and America they are almost in proportion to the paternal family. Between them and the latter Tylor admits an intermediary form, the paterno-maternal. The custom of the husband to take his wife to his home, or of going to live in her home or with her clan, gives us an insight into the origin of the maternal family. It appears from the statistics of Tylor that in the tribes where the custom is for the woman to come to the house of the man, the system of calling children by the name of their father is constant; that in the tribes where the husband goes to the house of the wife, the system of giving the name of the mother is proportionally frequent; and that in those where both usages exist, the children bear the name of the father when the mother goes to the father's house, and that of the mother when the father dwells with the mother. In Australia, the chief of the maternal family is now the maternal uncle and now and most frequently the father, although by law the children are dependent on the clan of the wife. Inheritance goes now by the wife and now by the husband, especially certain articles such as those which belong to the soil. On the other hand, sometimes the boys bear the name of their father

and the girls that of their mother. As we see, we have here an institution imperfectly established, of which the origin at the expense of the paternal family is evident, and which customs, accidentally created, have caused to deviate from its natural type.

In America the institution is more consolidated. Let us take the Iroquois for example. The children bear the name of their mother. If the husband dies, his goods are divided among his brothers, sisters, and brothers of his mother; his children receive nothing. If the wife dies her goods are divided among her children and her sisters; her brothers are excluded. It is the mother who grants the hand of her daughters and who seeks wives for her sons. The Iroquois are monogamous, polygamy is forbidden to the men, but in a tribe cited by Lafitau the woman can take a second husband. The family thus constituted is the nucleus of a social organisation which recalls that based upon the paternal family and consolidated by the worship of ancestors. Twenty to twenty-five families compose a clan, of which all the members are solidary, which has a common sepulchre, its own totem, is governed by a council, lives in a common "long house" and is exogamous. Three, four, five, of these clans get grouped into phratries, the latter into tribes, the latter into confederations. Each tribe has its own totem, the individuals are exogamous with regard to the clan, and endogamous with regard to the tribe.

Does the maternal family imply the matriarchate, that is, the transfer of the authority of the household from the hands of the father to the hands of the mother? By no means. There is a division of the authority here between the father, the chief of the maternal family, and, in the case of the Iroquois at least, the mother. All things considered, the woman is the gainer. Her responsibility with regard to her children is augmented, as is also her social position. In several tribes of America she is consulted and can be the chief. The women come together in council and send a delegate to the council of the men. Among the Iroquois she is said to have had the right of veto in declarations of war, and could intervene for restoring peace. (Schoolcraft.)

In fine, the complete characters of the maternal family in its

most widely spread forms are as follows: (1) the mother is directly responsible for her children and is slightly assisted by her husband; (2) the children bear the name of the mother; (3) the system of relationship is entirely altered, and, from our point of view, eccentric; (4) the property of the mother is left to her children and to her nearest maternal relatives, and, *vice versa*, the nephews and nieces inherit the property and dignities of the maternal uncle; (5) the latter, save in the case where, as among the Iroquois, the woman plays the chief rôle, is vested with the general authority, receiving offers of marriage for the daughters or even accepting the dower which he divides with the father; (6) the maternal clan is jointly responsible for the children, avenging them when necessary, while the latter, in case of war, are obliged to rally in its defence; (7) the father acts a secondary and extremely trifling rôle.

A curious and universal fact, varying in degree, but found in all forms of marriage, is the interdiction of union between near relatives, at first between father and mother and the children (here Westermarck cites but one exception, that of the Kaniagnuts) then between brothers and sisters, between uncles or aunts, and nieces or nephews, then between cousins of the first and second degree, and subsequently even further still. When the interdiction applies to all the members of a clan regarded as of kin, although the kinship has been lost in the lapse of time, the clan is called exogamous. In certain clans of Australia this fictitious kinship is expressed in the habit of all its members calling one another brother and sister. It has been sought to penetrate the motive of the interdiction of union between relatives. None of the five or six opinions which have been advanced are completely satisfactory. Nothing corresponds to it among the animals.

The meaning of the customs consecrating marriage has also been investigated. In general the young man seeks his own wife and the girl waits until she is asked, as is the custom to-day. At first, the marriage was effected entirely without formality, as we have already seen. The request having been made of the father, and his consent obtained, the young couple depart with full knowl-



edge of the engagements which they have entered upon; protection and the satisfaction of their needs by the one, submission and fidelity by the other. In a second phase the fiancé carries off his bride by violence after having obtained her consent and that of her parents, and rarely without that consent. Generally it is a sham struggle, a simple ceremony, though at times brutal survivals of it are found in modern civilisation. It is marriage by capture. The third phase is marriage by purchase, in which the price of the bride is regulated by usage, varies with the standing of the family, or is chaffered about. The price may be another girl in exchange for another young man, services rendered by the suitor, objects, such as one or two buffaloes, or a sum of current money. The fourth system is exchange between the father and the suitor, each one giving. The fourth, which is doubtless derived from the latter, is marriage with dower, which constitutes the personal belongings of the woman. Marriage by capture is most debated. For us, setting aside the facts of stealing in a hostile or friendly tribe, it is simply a representation of what takes place in animals, and which we find again in man. The male animal desirous of conquering a female, approaches the latter, gives exhibitions of his force, and shows himself ready to combat all his rivals. The female affects timidity, resists, and does not abandon herself until the male has offered her violence. This is what we still see to-day in our towns, and in the country with civilised man; the woman who is most disposed to yield is the one who most resists.

It is unnecessary to indicate the numerous exceptional forms which marriage presents among savages and half-civilised people, such as marriages by trial, after which trial the girl accepts or refuses a suitor as is the custom with the Todas; the marriages which are not definitive until after the conception or birth of a child, or which are broken if children are not born; marriages for a fixed space of time, etc. The latter already falls under the rubric of licentiousness, or prostitution, which we should be on our guard against confounding with hospitable, religious, and seigniorial prostitution, of which we shall not speak.

The genetic instinct and the family instinct, although often su-

perposed, are not necessarily associated in marriage, of which the object is less to satisfy the sensual impulses of the husband than to establish a home and to have children. In the most felicitous unions, the genetic instinct of the husband, being more imperative than that of the wife, is not always satisfied at certain periods of the life of the mother (gestation, lactation, etc.). When custom and his position in life permit it, he takes to himself a second wife, and, caprice intervening, perhaps a third; or he is, by permission of law, polygamous. But if that is not allowable he will either give vent to his impulses elsewhere, or will take to his home a concubine, which public opinion also frequently permits. As to the women, the genetic instinct very frequently leads them astray, even before marriage. The best behaved girls, so a missionary in Lower California recounts, languish after a husband. The first step is the gravest. They contract what they represent to be a marriage for a period fixed in advance at one year, at several months, or less, or for certain days of the week. Marriage of this sort thus leads by degrees to prostitution or concubinage with which among the savages or barbarians in a clan or tribe are associated all those variations of the sexual relations which are more or less accepted by usage. If we add polyandry and polygamy between two neighboring clans, we arrive at those irregular customs which are attributed to savages and among others to those assumed promiscuities, "marriages by groups" which figured in ethnography not many years ago.

Inquirers have been fain to see in this promiscuity, which is associated with complete anarchy, the first stage of man prior to the appearance of society: the political clan emerging from this anarchy, the maternal family issuing from this clan, and the paternal family proceeding from the latter. This is erroneous. The paternal family was the immediate, habitual form of association of the true primitive man as it is now among the lowest savages we know of. The family clan, afterwards political, is most commonly nothing but an enlarged family. When these clans are united into phratries and tribes, the family still persisted with its primitive patriarchal organisation. The maternal family is an accident only, a retro-

gression, which has drawn evolution into a devious way. Yet in this form it has remained none the less the fundamental element of the clans or tribes in which it existed.

Similarly polyandry and also polygamy are accidents, réversions to animal forms of marriage, aberrations of the human species. The advanced and essentially human form is monogamy, either express or concealed under different forms. Westermarck justly remarks that if one of the women in polygamy is the spouse *par excellence*, in polyandry one of the men, too, is the preferred husband. Even in the midst of licentious debauchery, as we find it among the Areois of Tahiti, each man has his own wife, of whom he is jealous and with whom he is very strict. Even in prostitution the woman contracts an alliance with some one man particularly, and makes of him her companion and protector. Monogamy is the conjugal form of the anthropoid apes, as of the lowest savages. In the first phases of civilisation it drops off in frequency, but only to increase again at a more advanced stage and to become the accepted and esteemed form. Furthermore, it is the form to which the paths followed by evolution in the animal scale logically led—the form which answers physiologically the best to the objects of reproduction: not quantity but quality of children.

The forms or types which human society affect or have affected, from the epoch of the family or family clan to modern civilisations, are so numerous and varied that the first thing to be done, in acquiring a satisfactory point of view, is the establishment of divisions beginning with the simplest and leading to the most complex, in conformity with the principle of evolution or of their progression towards societies which we esteem to be the highest, that is to say, towards our own.

The most desirable classification, that towards which all our efforts tend, and which takes into account all the characters presented, rests upon the idea of civilisation itself. It would be something as follows: the very lowest savages, such as the Veddahs; the semi-savages, such as the Australians; the barbarians of the first, second, or third degree, as the negroes of Dahomey and of

Benin, the Indians at the time of the discovery of America; the Kalmucks of Tartary, the Gauls and Visigoths; the semi-civilised peoples, such as the ancient Egyptians and Assyrians, the Peruvians of Pizarro, and the Mexicans of Cortez; and the civilised peoples, which are divided into the Ancients (the Greeks and Romans), and into the Moderns. But on the one hand science is not in a position to fill up the details of these divisions, and on the other their lines of demarcation are not at all distinctly fixed: there are everywhere insensible gradations.

A second classification is that which we have sketched out above, based upon the idea of association: families uniting into clans, clans into phratries or tribes, tribes into cities or their equivalent, and cities into federations and nations.

The third mode rests upon the first manifestations of the faculties that constitute man. The making of tools for attack and defence, at first worked in stone by chipping, cleavage, or polishing, then in copper, bronze, or iron. The age of fire-arms should be added. It is unnecessary to say that the resulting periods are nowise parallel in the different parts of the globe, in Italy and in France, in Europe and in America. Quite recently the tribes of Lower California were still in the stone age.

The fourth mode of division is based upon the manner in which men in societies, as they increase in number and encounter greater and greater difficulties in supplying their daily needs, organise their life either by *transforming* their present means of satisfying these needs, or by *adding* to those which they already employ, entirely new methods.

Other modes of division have been suggested giving rise to other social types, but not harmonising with the general idea of unbroken progression in the same direction. Such is the division of tribes and peoples into nomadic and sedentary, into peaceful and warlike, into monarchic, oligarchic, and democratic, into individualistic and autocratic, two forms compatible with each of the three preceding.

Let us dwell on the fourth mode, which is the broadest. The lowest savages, who are broken up into small families, are either



hunters or fishers, according to the country of which they have virtual ownership, or they are both at once. They are nomads, always in search of food, as long as the season permits it. At a certain season of the year, the Veddahs are shut in by the rains, the country is inundated, and the various families seek a refuge on some rocky eminence, where they come together but do not indiscriminately mingle. Sometimes one of them will volunteer at the peril of his life to go in search of food, which, if he finds, he will divide. This is the first stage of the first period or of the hunter type. The necessity of finding certain species of game or fish on the territory of certain families was perhaps one of the first occasions of reunion and of the granting of concessions after the manner of an association. The second stage of the hunter or fisher type is found in savages already organised into clans or tribes. It is characterised by a spirit of foresight and conservation which is quite remarkable. Rules are established for the protection of useful animals and plants; hunting at the time of mating and flowering is prohibited in certain regions; general expeditions are made at certain times only. The Americans of to-day evince nothing like a similar foresight when they suffer their forests to be burned and devastated,—forests which even now are in many places utterly shorn of their most beautiful original species.

The second period is that in which man, seeing his customary game diminish as the number of hunters increases, and under the pressure of hunger, takes a step farther in the direction of foresight, gathers together in some enclosure the animals which form his customary food, subjects them to domestication, or leads them in herds to the pastures which they successively exhaust. This is the pastoral period which has persisted to our day among a great many peoples and which is essentially a nomadic stage.

The third period, which frequently sets in at the same time with the preceding, is that wherein man applies himself to agriculture. Two forms are met with here. In the one the culture of the soil is intermittent; man plows and sows, pastures his flocks while living a nomad life, and then returns to the tilling of the soil. In the other, man is sedentary; he inhabits houses with his wife and

children, who assist him, or he dwells in villages. This kind of life is eminently favorable on the one hand to the patriarchal family grouped about its patrimony and consolidated or not by the worship of ancestors, and on the other, to individual property spontaneously created at the outset by simply taking possession of, breaking, and working undisputed land. In primitive societies which devote themselves to agriculture, there is generally collective property of the soil vested in the clan which sometimes culminates in the periodical distribution of lands not reserved; there is also family property, included in the preceding, being the outcome of family labor, and being handed down from generation to generation according to certain rules; and finally there is personal property. In our modern societies the state is still theoretically the owner of the soil, it takes possession of it again whenever it wants to for reasons of public utility. For a long time the cultivation of the soil was not held in high repute, the profession of the hunter or warrior was a far nobler one as affording evidence of the individual valor of man. Later, even in civilised nations, it was voluntarily entrusted to slaves. In Athens, the laboring class was among the lowest. This way of looking at things has changed since schools of economy have taught us that the goods of the earth are the source of all true riches.

The fourth period, or fourth type, did not assume importance until later, but it has its roots in the first phases of society. Exchange does not exist among animals, and is one of the precocious manifestations of the human mind. It is discovered during the second stone epoch in France. It is derived from the obtrusive fact which spontaneously came to notice, that one individual excels in the making of instruments, another in the chase or in fishing. The first says: "Give me what thou hast, and I will give thee what I have." This is barter or exchange in kind. Shortly after the first rejoins, "Do thou go and hunt for me, and while absent I will protect thy family." We have here exchange of services. This phenomenon takes place in the clan or tribe. Later, certain individuals, adopting definitively this kind of specialisation of labor, set out on voyages in quest of the scarcest materials, and con-

sequently those most in demand, for example, good flints which are easily worked, shells for ornamentation, cattle, etc. The distribution of such objects was not always easy. Some one would want something and would have nothing to give in return that the other needed. The needs of the day and the morrow varied. Some conventional object of value was then adopted as a medium of exchange, such as cattle, tobacco, wampum. The latter, being more portable, became the current money, and afterwards was succeeded by pieces of metal and letters of exchange. Little by little the individuals seeking their subsistence from this species of labor multiply, and the advancement of navigation widely extended their sphere. An entire nation, the Phœnicians, abandoned themselves passionately to its pursuit. With them the *commercial* type was born, that is to say, a society not exclusively devoted to this kind of work, but associating it preponderantly with other means of satisfying the national needs. In the same perfection this type is not found until centuries afterwards in the Jews of the Middle Ages, and in the Hanseatic and Italian ports.<sup>1</sup>

As to the fourth period, or the fourth type, its roots are more deeply embedded in the past of man, but it does not attain an advanced stage until after the preceding period. It is the *industrial* type. The manufacture of stone, bone, and ivory instruments was its first stage, that of household utensils, of jewels, baskets, matted fabrics, and canoes the second stage. More than any other manifestation of the human mind, it reflects the latter's progress in satisfying the needs of daily life. The multiplication of needs which it gives rise to, the comfort which it brings with it, the luxury to which it tends, the need of wealth that results from it, are the most palpable measure of the degree of civilisation attained. There were shops for the manufacture of glass and pottery, for weaving and dyeing in Egypt from the fourth dynasty. The Pompeiian collection of the Museum at Naples shows to what a stage industry had arrived in the first century of our era. The art of war was one of

<sup>1</sup>Blanqui, membre de l'Institut, *Histoire de l'économie politique en Europe, depuis les Anciens jusqu'à nos jours*. Paris, two vols. 1860.

its stimulants in all epochs. With printing, steam, and finally with electricity, progress took an accelerated pace. The Museums of Ethnography, like that of the Smithsonian Institute at Washington, and the Polytechnical Museums, like that of Kensington at London, trace backwards its evolution. The history of the industrial social type is divided into two sub-periods: the one in which the individual, having as his sole possession his arms and hands, and still enjoying by virtue of his muscular force high esteem, preserved his relative independence; the second, in which the individual is outstripped and soon afterwards conquered by machinery with which he cannot compete and which, as its powers grow, finally takes his place.

Then appears what we deem necessary to regard as the sixth period, a sixth type, the present, the *intellectual* type. These machines, to say nothing of the science which has created them, are the material incarnation of the intellectual power of man, ultimately gaining the ascendancy over the muscular or animal force of the early ages.

Mind, having been *par excellence* the weapon of man in his struggle against nature, could not help culminating in such supremacy. It is the ultimate term of division and specialisation of labor for the satisfaction of needs of all kinds. The consequence is that the conditions underlying the social relations between man and man have totally changed, and that the great problem of the twentieth century will be that of finding the best adaptations to this new state of things. The twentieth century ought rationally to be the pure reign of intelligence.

It will surprise some, perhaps, that to the six types named, to-wit: hunting, agricultural, pastoral, industrial, commercial, and intellectual, we have not added the military type to which Mr. Herbert Spencer attaches so much importance. Our motives for not having done so are as follows: (1) What gave rise to the six preceding types was the necessity of living, of multiplying or transforming the means before employed in supplying the urgent needs of life. Militarism belongs to an entirely different order of ideas. It grew from the need of defence, and later, in response to other



needs having no relation to necessity. (2) It has existed at all times, parallel with the types cited, save in countries where the topographical characteristics themselves formed a natural defence. (3) It appeared early, was the result of no social type, and engendered none. It varies and is hostile to all the social types. (4) There would be just as much reason in admitting a clerical type, likewise appearing as soon as men united in groups, accompanying all social forms and resulting from a like particular need. (5) Perfectly rational at the start when it was used to defend the home, the clan, the tribe, or to maintain the collective independence of the latter, or even in expeditions into neighboring territories in search of food which was lacking at home, militarism subsequently became the expression of man's desire of dominating, of displaying his power, of satisfying his pride when it was not, even worse still, madness, or sheer debauchery in blood. The six types which we assume, may have their defects by the side of their advantages, but they are certainly a logical consequence of amelioration, stages in the path of social progress, which cannot be said of militarism.

Militarism in its legitimate, primitive form is but a reflex action, the same which impels the frog when deprived of its brain, to contract its leg when pinched, or the lion to throw himself upon the hunter when wounded, or the cercopithecous monkey to organise expeditions into corn fields for the satisfaction of his hunger. The difference in the case of man is that the animal rarely attacks and destroys without necessity, while man ultimately comes to doing so from sheer passion.

The evil in the case of man dates from the day when it was necessary to nominate the chief of a clan, and when the chief in question, together with his followers, saw in war a means of strengthening his position and of becoming powerful. At the start, every man able to handle a weapon was a soldier. Some were brave, others pusillanimous. The first were hailed as heroes on their return, the others were despised. The first necessarily were the recipients of favors, were consulted in council, had the best places reserved for them at the ceremonies, were invested with definitive marks, honors, and privileges. Selection spontaneously set in and

there arose a class of warriors. The warriors multiplying, their importance waxed great, they looked upon themselves as a superior class, treated the rest with disdain, became proud, arrogant, and finally asserted high prerogatives in the conduct of public affairs. Coming to an understanding with the high dignitaries of which they were the pillars, such as the chiefs, the fathers of families, and the priests; having the forethought to appropriate the major part of the spoils of war, and consequently increasing in wealth, their influence also increased. The administrators of the state were recruited from their ranks. Gradually they came to look upon the state as their special work, as their peculiar property, and in the laws which they helped to establish they ultimately identified their own interests, whether as a class or as individuals, with the interests of the people. The others below them were humble and subordinate and possessed only nominal importance.

At the origin, war was rational. It subserved the defence of all and was kept within bounds. Savages as a rule never push hostilities beyond the necessary point. The Australians often substituted for it single combat by groups, the conditions being fixed in advance as in a duel. The Tasmanians, when the war was ended, clasped hands and forgot its originating offence. Hostilities were not perpetuated. But when the chiefs whose power sprang from war alone and the professional warriors became the ruling element, peace was often only a truce. Attacks were wilfully made under the pretence of making conquests and establishing empires, nations advanced in hordes in search of new and rich countries, pillaged cities and bore off prisoners of both sexes. Foraging expeditions were converted into outright robbery. War became a lucrative profession, a man-hunt, a royal pleasure, the highest glory.

Thenceforth the populations were divided into conquerors and conquered, within as well as without the city or empire. Every state was divided into two bodies, the slaves and the citizens, distributed into classes. Slavery in all antiquity was a scourge of blood, sometimes dissimulated under highly civilised appearances. Everywhere here, we see men whose only wrong was that they had been unfortunate on the day of combat, valiant men, sound in body and

mind, curbed under the hands of a master, enfeoffed in a society having different manners, a different tongue, frequently different laws, and different gods from their own. I say different laws, but no. For them there were no laws. They had lost all quality of manhood.

Our great modern states, the absolute monarchies, with all their classes of nobles and courtiers, are the product of war. The chiefs divided up the conquered countries among themselves and became so many rivals, disputing for the available spoils. The least happy are the vassals, the happiest the monarch. But the latter having reached his position by war is compelled to maintain it by war. He must encourage the ardor of his partisans, must distribute among them new lands, and shower upon them riches and honor. The property which we saw to be natural in its origin, thus becomes the prey of the strongest. Then feudalism is born. The true society, the society of the workers, disorganised, shattered and perverted in its whole mechanism, thenceforth was left to establish itself as best it could, parts in towns where they established communes and obtained by dint of perseverance guarantees protecting them in their work, and parts in the country under the protection of feudal castles on the lands of the seignors in whose favor they alienated a great part of their liberty for the permission to live.

These times are gone, people say. Militarism has changed their characteristics. But has the change been so great? When war breaks out, is it less horrible in its methods, less sanguinary, does it absorb less of the resources of a country, does it not destroy in less time the fruits of years of labor and saving?

War has not only its evils of the moment, and disasters which are soon repaired; it has also its reactive influence upon morals within. It habituates the minds of people to certain ways of thought it teaches them the law of the strongest, causes man to lose sight of justice, and inculcates that there are two schemes of ethics, that of ends and of success and that of failure. So long as war is not suppressed, the aspirations of philanthropists will be ethereal Utopias. With Mr. Spencer it must be admitted that contemporary militarism, however legitimate (for one nation cannot suffer itself

to be devoured or molested by another), is the grand calamity of the day, the disgrace of humanity, and that in this respect we civilised people do not stand as high as the Veddahs or the Australians.

By the side of militarism, which is an animal manifestation of our organism, still presiding over the relations of peoples to each other and forming an outward evil of society reacting upon it interiorly, there exists another social evil which works wholly within but which is not less grave.

One of the first phenomena which the beginnings of human society present, and which bear some similarity to the formation of animal colonies by associations of merids, is the division and specialisation of labor. This division begins in the family between the husband and the wife; it is continued in the clan or tribe between individuals; it becomes established and spreads with the growth of the population and as the means of living become more difficult; it attains its maximum extent in our present complex civilisation. One of its results is the breaking up of societies into classes and professional groups whose number is constantly increasing. The class which appears first is that of the fathers of families or of the elders on one hand, and of warriors on the other, which by fusion become the superior class, that which the chiefs, the administrators, and the magistrates affect. The sacerdotal class then forms and soon becomes associated with the preceding, which has need of its services in swaying the populace. The third, fourth, and fifth social types which we have described give rise to the following: the agricultural class, the merchant or commercial class, and the artisan or industrial class. The last embraces all that is not included in the five preceding, all those whom the family organisation not having incorporated has left without a home or domestic gods, those who have never been able by perseverance or their own worth or by favoring circumstances to succeed and rise, the day-laborers who live from hand to mouth, the tramps, outcasts, and outlaws. The slaves on the one hand and the strangers on the other, are classes apart. In Athenian times, a while previously to Solon, the proportion of the population was as follows: citizens of



all classes nine per cent; strangers subject to severe restrictions, eighteen per cent; slaves, seventy-three per cent. The warrior, magisterial, and priestly classes were the higher classes; the merchants, the artisans, and the agriculturists formed the middle classes; the common laborers, the lower class or plebs. But the division did not terminate here. The middle classes were subdivided into professional groups, such as sedentary or pastoral agriculturists, fishermen, sailors, carpenters, shoemakers, scribes, interpreters, etc. These classes existed virtually as such or they were consecrated by laws; some were closed and hereditary, others open; a person was born, for example, warrior or priest. In Egypt, according to Herodotus, there were five classes, according to Diodorus, seven. But the latter must have confounded classes and professional groups, and then have omitted some of the last. The word "caste" seems to have been reserved for closed groups such as they existed in India.

In India, or, to be more precise, in the Punjab, there were originally, according to the code of Manu, four classes: the Brahmans or priests, the Kshatriyas or warriors, the Vaiçyas or husbandmen, merchants and artisans, and the Çûdras or servants. The aim of this classification was to prevent a mingling of the conquering Aryans with the Dravidians, and consequently the absorption of the former. The first caste was composed of Aryans supposed to be pure, the second of Aryans and Dravidians crossed, the others of Dravidians. The black aborigines were excluded from the classification and bore the name of Pariahs, a term subsequently invented. Afterwards the castes were modified although the first suffered the least. Numerous intermediary castes were engendered, that of the Vaiçyas in particular was divided into a great many sub-corporations, each having its particular customs, laws, and religion, endogamous with respect to themselves, exogamous with respect to one another and then giving rise to other castes. There was, for example, the caste of Kayasthas, or scribes. We have legends concerning its origin, but none of them are trustworthy. It is divided into four sub-castes and each of these into sections, each comprising a certain number of families or family clans. According to the

census of 1881 there were in India two thousand five hundred castes of this kind, not including lesser divisions.

Classes, or open castes, are according to the nature of things, and in themselves no evil. They are a logical stratification. One passes from layer to layer, rises or descends according to one's starting-point and the success or non-success of one's conduct. But this is not the case in closed classes and corporations. When a strong superior authority, special customs, religion, or secular routine have enervated the character and strained the resiliency of individuals, pushed resignation to the point of self-abandonment, then castes become perpetuated with all their faults and merits. They perform their work as the specialisation of labor requires it, but that is all. When on the contrary the individual is active, thinks, desires to be happier, preserves in himself the stimulants that make man, the feeling of solidarity and of general interest is established, aspirations are joined, the caste or corporation becomes an individuality opposed to those of other castes, competition with the latter is aroused and grows great, and at the same time the idea of equality and inequality, the desire of struggling and of having the same enjoyments, the same rights, and of conquering.

It is the war of classes, unknown in India, in Egypt, and in all countries where in the lower states of society the spirit of liberty has faded or never been roused, but frequent in Greece and Rome and in modern civilisations where the general level is higher. When individuals live in contact with one another, are not utterly ignorant of what is going on about them, when they exchange, be it ever so little, their thoughts, which happens in towns more than in the country, especially in the liveliest, the effect is inevitable. The isolated individual is pliant and submissive. Banded together, individuals support one another, lend themselves more easily to enthusiasm, and are ready to follow the most audacious leader. Hence in the lower classes there exists always a latent protest against the inequalities in the distribution of happiness, a silent rancor which the habit of submission can alone suppress. Hence the intermittent explosions of the disinherited classes, the governed against the governing.

The complement of the struggle between classes is that between individuals, to which we shall have too much occasion to revert to insist upon it at the present moment, and which the works of Darwin have placed in prominent relief. The evils of militarism are patent and striking. The drawbacks of that inward evil which also is gnawing at the base of society and attacks both individuals and classes are hidden, and, if I may use the expression, interstitial.

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## THE BASIS OF MORALS.

A POSTHUMOUS PAPER OF AN ANARCHIST PHILOSOPHER.<sup>1</sup>

"To philosophy gravity is nothing but the law of heavy bodies; and therefore morality can be nothing but the law of animal action."—*Barratt.*

MORALITY has ever been a fruitful theme for speculation, and engaged the attention of the profoundest minds. A theory of moral sentiments and the rationale of "right" conduct has entered into every philosophical system of the past. From Plato and Aristotle to Darwin and Spencer rival theories have found valiant defenders, and their respective views of conduct underlain and colored their systems of thought. But the modern student has no need to ponder over the musty tomes of by-gone speculation in considering this subject, for the wider generalisations of the doctrine of evolution here, as in all other problems, have opened new paths and grander vistas in hitherto unexplored directions.

The problem of ethics is primarily an inquiry into the source, rather than the course of action, for the source being definitely formulated, the course of actions may be clearly defined under the respective heads of "right" or "wrong" conduct, and its ultimate end deduced as a logical sequence.

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<sup>1</sup>DYER D. LUM was an anarchist. He came of an old New England family and was born at Geneva, N. Y., February 15, 1839. The composite picture of his ancestry shows (as he used to express it) "the minute-man with his rifle ready for use between prayers," and on his maternal side the dim figure of an English crusader commemorated in the coat-of-arms of the Tappan family. He was a book-binder by trade. During the civil war he served as a volunteer and took part in some of the hottest battles of the Rebellion. When captured, he escaped from prison, and was at the close of the war breveted Captain of Cavalry. In 1876 his name appeared on the ticket headed by Wendell Phillips as Lieutenant-Governor



The respective schools of ethics may be loosely classified as the empirical and the intuitive. While there is little difference between them as to the moral nature of particular actions, they differ widely when attempting to explain the source of authority inherent in the world-wide recognition of the moral *ought* as a "categorical imperative." John Stuart Mill states this very explicitly when he says that both schools recognise "to a great extent the same moral laws, but differ as to their evidence and the source from which they derive their authority. According to the one opinion, the principles of morality are evident *a priori*, requiring nothing to command assent, except that the meaning of the terms be understood. According to the other doctrine, right and wrong, as well as truth and falsehood, are questions of observation and experience."

The pre-evolutionary moralists were mainly intuitionists, whether finding the source of moral ideas in the *eternal reason* or *fitness* of Cudworth or Clarke, the love of order of Malebranche, the

of Massachusetts. Embracing in all political questions the most radical cause, we find him as a leader of the Greenback movement, then as a socialist, and at last as an anarchist.

He was a fluent speaker as well as a ready writer, and contributions of his, both in prose and verse, appeared in various periodicals. It is characteristic of the broad range of his pen that one of these journals was *The Catholic World*. He served as a member of a committee appointed by Congress to investigate the labor troubles some years previous to the Haymarket riot, and when, after the throwing of the bomb, seven anarchist leaders of Chicago were tried for conspiracy, he rushed to their assistance and acted as their friend and adviser. His anarchism was not the anarchism of Spies, nor that of his more intimate friend Parsons with whom he had been associated on one and the same committee for the investigation of the labor troubles; but he saw in them victims of the cause of liberty, and that sufficed for him to befriend them. When after the trial the cause of anarchism became unpopular, Dyer D. Lum was naturally ostracised and lost many of his former friends. Financial troubles completed the failure of his last years, but he endured the most exasperating privations without complaint until the end. On April 6, 1893, he was found dead in a lodging-house on the Bowery in New York and the papers reported that he died of heart disease.

His essays, scattered through the back-numbers of various periodicals, characterise throughout the zealous love of freedom that marks his life. They are not always consistent, sometimes reckless, but then again indicating a deep insight, for he was a close student and a keen thinker. In his last years his interest became more and more concentrated on philosophical and psychological problems, involving the main question of practical life, the basis of ethics. His posthumous essay on ethics, which is here published for the first time, was deemed by himself as the maturest and best of all his writings, and he left it to the world as his last bequest.

*love of being* of Jonathan Edwards, the *moral sense or conscience* of Butler, Hutcheson, and Mackintosh, the sympathy of Adam Smith, or the recognition by the intellect of *moral beauty* of Dugald Stewart. On the other hand, the inductive or empirical school from Leibnitz, Hartley, and Paley to Jeremy Bentham have revived the ancient Hedonism of the Cyrenaic sect by affirming "pleasure" or "happiness" to be the sole motive for action and criterion of "right" conduct, whether viewed from the personal standpoint (Egoism), or from that of "the greatest good to the greatest number" (Utilitarianism). The successors of Bentham, such as Bain, Grote, and J. S. Mill, under the all-absorbing influence of evolutionary conceptions, have so idealised Hedonism that but little of the pattern of the original texture is left, though a few crass theorists still exist as "survivals."

In the works of late writers on ethics, such as Spencer, Sidgwick, Stephen, Simcox, Thornton, Barratt, Courtney, Maude, Sorley, Wake, Owgan, and others, it will be seen how great is the divergence, even among those who accept the empirical method, no two of which agree on several vital points. From the great expounder of Egoism and royal authority, Hobbes, to Herbert Spencer, however wide the variation, "pleasure" remains the controlling motive in conduct. While among the writers of what is generally called the Evolutional school, we find more or less dissent from the "ego-altruism" of the expounder of Evolution—Herbert Spencer.

In such a conflict of opinions among those whose names adorn the literature of the day, it may seem temerity to attempt to recast this much debated problem and to seek the guidance of Hera to pass the dangerous straits of Scylla and Charybdis, yet the conviction that the science of morality has yet to be formulated, forbids thought to cease tentative efforts. Pleasure or happiness, which one school makes the result, the other the source or motive of "right" conduct, discloses a hitherto impassable gulf which Evolution must bridge over. The pure egoism of Hobbes and his inane followers who are attempting to adapt the conclusions of the royalist to individualistic philosophy, as well as the utilitarians of

Bentham, have both been supplanted by evolutionary ideas, and the present tendency to recast them upon an organic basis offers an opportunity to apply later thought to ethics, for the transition from Hedonism to modern scientific thought has not yet been clearly made. The evolutionary school has achieved such a result in the old-time controversy relative to the "forms of thought" in reconciling the intuitive and empirical schools, by demonstrating that what may now be conceded as innate or intuitive was originally acquired by experience, and through heredity becomes organised into mental structure. The same must be done for Kant's categorical Ought. Accepting evolution, therefore, as the philosophy by which all theories must be tested, we must seek such a reconciliation as will not only enable us to generalise a fundamental law from facts, but be subject to verification, and thus held within the lines of the knowable.

"Science," says G. H. Lewes, "is built up from *abstractions*, and these are built up from *concretes*; but no abstractions must contain more than is warranted by the concretes." How true this is needs but a moment's reflexion to see. Facts alone can but constitute the raw material, so to speak, of science, which begins with generalisations. We abstract from facts particular data in which there is common agreement, and this abstract generalisation we term law; not in the sense that law determines phenomena, but is determined by them—is their formula.

A scientific conception of social relations must follow the same method of procedure. In ethics our facts are subjective relations affecting conduct, and the generalisation or "law" we seek must be an ideal abstraction; one not alone determined by present phenomena, but by the past, and affording us a Type for which we may scan the future, thus rising to a higher abstract conception, yet in accordance with its concretes, by which both the source of "right" conduct may be defined, and its ultimate end determined. Conduct, past, present, and future; the crude conceptions of the primitive races, the highest aspirations of living souls, as well as the ultimate aim of human conduct—the goal of progress—must be brought under the scope of one general law, which, while in

agreement with all the multitudinous facts of past phases of social life, and explaining their shortcomings, will present us with a moral Type consonant with the empirical genesis of what may be admitted to have now become incorporated into organic form; but at the same time affording an inspiration which will illumine the present with the conscious recognition of an Ideal in which may be seen reflected "the glory of the human."

How far the current theories of ethics approach this standard, we may the better understand by a rapid criticism, which will also the better enable us to grasp the fundamental law constituting the basis of action, and determine both the nature of "right" and give shape to the requisite determining rules of conduct. For this purpose we may divide current theories of ethics under four heads:

(1) Egoistic Hedonism; (2) Universalistic Hedonism (Utilitarianism); (3) Intuitive Ethics; (4) Evolutional Ethics.

1. *Egoistic Hedonism*.—Hedonism, from the Greek *ἡδονή*, "pleasure," makes this the sole motive for action.

When Mill says, "Happiness is the sole end of action," the Egoist limits this to the individual ego; in the words of Barratt, "The individual ever acts to secure his own pleasure." It is unquestionably true that life consists in adaptation to environment, and that pleasure accompanies adaptation. The fundamental principle of Evolution, natural selection, carries with it the necessary conclusion that normal life involves at least the absence of continuous pain, which may be positively defined as pleasure or happiness; further, it may be conceded that in the moral world good and evil are the synonyms of pleasure and pain, but it does not thereupon follow that "pleasure is the only motive power."

Egoistic Hedonism ascribes to Self an independence it does not possess. Notwithstanding the stress now laid upon what Hobbes ignored, the Social Organism, the objection remains. We smile to-day at the last century conception of the mind as a *tabula rasa*, as typified in Condillac's marble statue, yet the Egoistic theory commits a similar error in virtually separating personality from hereditary conditions which determine it. By positing personal pleasure as the source of action, its logic tends to exalt self above



that which has conditioned it, above the brute, and merges all conception of "right" into temporary self-gratification, and in thus making the criterion purely egoistic, eliminating conscious recognition of over-lying social requirements. But the chain of sequences in states of consciousness to which in thought we ascribe personality is dependent rather than independent, more controlled by, than controller of, actions. The *ego* is the expression of the organism, having its roots deep in its *affective* nature; in other words, it is the consensus of psychical functions of an organism. In the moral realm it is but a cell in the social organism, shaped by antecedent causes determining both organic functions and its function.

Pleasure is a *resultant* from adaptation rather than its cause. Cattle ruminating in a meadow present us with an instance where pleasure and adaptation are one, but egoistic desire for pleasure cannot be predicated as their actuating motive for gratifying the affective desires of organic structure and the adaptation the result. The actuating cause lies back of the desire.

Are pleasures to be compared and scheduled in order to determine the requisite maximum of "right" conduct, or left to impulse? That pleasure is not the motive is seen in the well-known "paradox of hedonism," which is given by Dr. Courtney thus:

"If there is one thing more certain than another, it is that to do an action because of the pleasure it brings is precisely the way to lose the pleasure. Pleasure, therefore, which is what we are told to aim at, is exactly that which we must not aim at if we desire to secure it. A paradox, indeed, when the end of human activity is found to be secured only on the express condition of not making it the end of activity."

There is nothing better established by the new Psychology in supplanting the methods of metaphysical introspection by that of scientific research, than that underlying all personality are the organic, or systematic, sensations; "a voiceless deep" existing in all organic life, the crests of the waves of which only possess the phosphorescent light of clear consciousness. It is by the variation of environment that these systematic sensations are often raised to the surface, when the *ego* first becomes conscious of them. These often affect us, producing, for instance, a sense of general depres-

sion, and in which the sum of all psychic states that we dignify with the term *ego*, the *me*, takes on a new character. Indisposition, down-heartedness, gloom results, and the supposed controlling ego is presented with the paradox of seeking pleasure in the absence of pleasure!

However loudly pleasure may be asserted to be the sole spring of action and criterion of "right," it remains doubtful whether as the source of action it has not produced as much pain as adaptation. More, it still remains to be proven that the most complete adaptation to environment can as yet bring more than the physical pleasure of well-fed cattle. The problem which confronted Gautama Buddha, the eternal hunger and the thirst of the mind, ever more keen and painful to sensitive souls the more it is gratified, the unceasing correlation between higher aspiration and ungratified desire, the wide desert of mental pain in which pleasure constitutes but oases to inquiring souls, still remains unanswered by Egoistic Hedonists. However applicable their theory may be in seeking greater comforts and pleasing "affinities," as a rule for determining conduct it signally fails.

"Those mighty spheres which gem infinity  
Are only specks of tinsel fixed in heaven  
To light the midnights of their native town."

"A human being is the possibility of many contradictions," says Schopenhauer, and nowhere is this more manifest than in the interaction of the two great opposing principles which converts every soul into a battle-field. Organic desires underlie and are *anterior* to development of intellect; the new born babe manifests will before a sense-impression has been registered. In more mature years the animal and the human are never in accord within us, because the war unto death between organic desires and intellectual judgment has begun. But pleasure, as the source or action, has its root in the gratification of our desires, and often persists long after reason has demonstrated its folly. The Hedonistic assumption, then, in so far as it applies to man (where, indeed, moral relations are confined) is based upon organic impulses and not upon

his higher intellectual, or human nature, to which it is often directly opposed.

A more rigid examination of actions show us that race-maintaining conduct, rather than individual pleasure, is that upon which nature places her seal of approval, and that, in the evolution of species, the pleasures as well as the life of the individual are ruthlessly sacrificed, or left to decay, as soon as race-maintaining ends have been met. Consequently it is a theory which thus places "the cart before the horse."

2. *Universalistic Hedonism, or Utilitarianism.*—The most eloquent and at the same time most idealistic of all this school, John Stuart Mill, says :

"Actions are right in proportion as they tend to promote happiness ; wrong as they tend to produce the reverse of happiness."

The essential difference between this school and the Egoists is in seeking *general* happiness, which they find in utility or expediency, wherein consists :

"The rules and precepts of human conduct, by the observance of which an existence such as has been described might be, to the greatest extent possible, secured to all mankind, and not to them only, but so far as the nature of things admit, to the whole sentient creation."

But even to this ideal picture exception must be taken, for like its ally, the theory of Egoism, it is open to objections.

Based upon the assumption that what was at first willed because it was desired, comes to be desired because it is willed, it leads to the fixity of habit, and thus ignores the patent fact that conduct however fixed is not stationary, but ever evolving to broader relations. Utility as a causative motive fails to explain this underlying impulse to broadening out the idea of "right" beyond the utility of any existing age. Time was, for instance, when slavery was useful and expedient, as well as merciful to the doomed captive, for without it mankind might hardly have acquired the habits of industry. While not claiming that at that period of social growth slavery could be called "wrong," the utilitarian hypothesis fails to account for the genesis of the idea that it is in fact "wrong" and

not "right," an idea which had to battle for ages with what utility had fixed into permanent status as "right," and, consequently, this growing moral protest as "wrong."

Its distinction between virtuous and vicious actions is not clear, as the same act in the same age may be classed as both in different countries. The one as well as the other tends to become fixed in custom as expedient, and hence "right" as comparative morality abundantly shows. Hence, we have contradictory codes simultaneously existing and against which a growing moral protest rises from the unconscious, which is not seen to be either useful or expedient until long after it has manifested its presence and undermined the existing utilitarian "right."

The expedient in one age is thus seen to become by unconscious growth inexpedient in a later, thus leaving conduct on the shifting sands of a temporary requirement, not subject to general law, and hence beyond the domain of scientific examination. The aim being the greatest amount of possible happiness, the realisation of this should be the cessation of all effort, while in fact the greater the attainment the larger the desire becomes, and the fixed boundary is seen to be inadequate; the fuller life's cup becomes with the realisation of happiness, the more it is embittered from happiness denied. As in the nervous structure, the keener the sensibility the more acute is pain, so in the psychical nature, the further we explore the sea of happiness the wider grows the expanse of the unattainable, and heavier on the soul rests the philosophy of disappointment.

Expediency or utility, like pleasure, follows action, instead of being its source; and in basing a philosophy of conduct on the reverse statement of facts, the tendency is to institute as "right" what time has often subsequently decided to be "wrong."

3. *The Intuitive School.*—The intuitionists affirm for man a "moral sense" by which there is assumed an original quality in actions irrespective of their consequences, through which "right" is immediately cognised by the conscience. While admitting what none deny that "right" actions conduce to the well-being of mankind, they claim that this is because they are in accord with "eter-



nal reason" reflected in conscience. The moral quality of an act, therefore, becomes independent of experience which can but confirm this inherent nature and is cognised by an inner sense which distinguishes man from animals, enabling him to make his own affections objects of thought. This, the logical presentation of the claim, directly controverts the doctrine of Evolution, by drawing a sharp line of demarcation between human and animal intelligence, by giving to the former an innate and metempirical perception of an external moral order of the universe, adding to the known functions of the organism a supernatural gift or faculty by which at all times man has been, or could be, enabled to perceive absolute truth; and this irrespective of their differences in seeking it in the intellect or in the emotions.

The Intuitive School is fundamentally metaphysical, or speculative, being based upon no known concretes by which its assumed generalisation may be made subject to verification. It takes man at the high mark of culture and by introspection assigns to all men similar potential capacities. It is unscientific because its alleged facts and laws are never reduced to verification, being arrived at deductively rather than inductively. Its innate moral sense as distinguished from an evolved social sense, is beyond and above science, metempirical, confined to the subjective sphere without genetical connexion with the external world. More, it is at direct variance with what we know of the lower races. Consciousness gives only results, never processes; these are secreted in the subconscious, more and more recognised as overshadowing the conscious, and to which we owe genius, inspiration, impersonal creations. But this "power not ourselves which maketh for righteousness" exists as such in consciousness only, and we cannot say it precedes it. That which in every great thought and deed overflows the submerged consciousness, which not only inspires the highest but consoles the lowly, which from the simplest irritability of organic matter has flowered in sociality,—this the doctrine of Evolution finds in the Social Organism, "in whom we live, move, and have our being."

Conscience is thus seen to be the accumulated and registered

experience of the past, not a moral faculty bestowed by an external, unrelated power. Instead of a judge seated within passing sentence upon actions in accordance with "external reason," it is the voice of approval or reprimand of the general mind. Consequently the voice of the moral sense, in the light of evolutionary knowledge, becomes but the accumulated convictions of past generations, woven by time under social reactions into structural form, and made organic by the habits of ages. The child born at this stage of progress among us comes into existence with a far wider scale of emotional keys in its nature than our ruder ancestors; keys capable of responding to the slightest sympathetic touch, and producing, as it were, a harmony in action which we term moral, and which alone merits the name divine.

The Hedonist, ignoring the primary impulse, proclaims an effect a creative cause. The Intuitionist, perceiving the fatal weakness in this argument, assumes a metempirical cause, lying outside of and beyond verification, to account for what the known facts of human nature fully explain.

4. *Evolutional Ethics.*—From the character of the criticisms offered it is clearly seen that a strictly scientific theory of morals is to be sought in the fundamental laws of our nature. The continuity of sentient existence presents no break, and the subjective aspect of relations which we abstract in thought as morals, in constituting the flower and glory of conscious life, must have root below the surface level of consciousness, in the great sea of the Unconscious and find its correlative aspect in the physical world. All instincts, before becoming organised as such, imply a *raison d'être*, an antecedent impulse, the origin of which enters into every biological problem. Underlying all specialisation of function known as instinct, we find the so-called instinct of self-preservation;<sup>1</sup> for it is but the reverse method of expressing adaptation of environment, a generalisation of the reaction of the organism to conditions

<sup>1</sup> "The so-called instinct of self-preservation is a fiction. The only impulse at work there is the shrinking from pain; and this in the matured expression leads to the intelligent act of self-preservation." G. H. Lewes; *Problems*, I., p. 162.

essential to all sentient existence. The expressions: life, adaptation, self-preservation, are identical propositions; the latter two being but objective and subjective methods of expressing the modes of the first. Instead of saying that self-preservation is an instinct seeking adaptation to maintain sentient existence, we may view their separation but as an artifice of the logical understanding by which we contrast two aspects of phenomena, and which has no existence outside of the conditions which constitute it.

But adaptation and self-preservation have a far wider range than that of individual life. Self-preservation is fulfilled in the life of the species rather than in that of the unit, the adaptation requisite being that of race-maintaining conduct. This is very clearly seen in a comparative study of longevity among species. The strongest of all instincts, one having its roots in the fundamental laws of life, is the sexual, and upon the fulfilment of this race-life depends. Now, as a matter of fact, running through all sentient life from moner to the most complicated structure, duration of individual life is seen to be commensurate with the length of time requisite for the sexual instinct to fulfil race-requirements. This is a universal rule, from the bee which copulates once and dies in the act to the elephant, and some birds, whose life extends through two centuries. When that period is reached where race-maintenance no longer requires the individual, decay begins and death results; the "rounded end of life" is met notwithstanding personal yearnings.

The crowning glory of evolutionary thought is the logical precision it has given to Comte's conception of the Social Organism. Change has been progress because it has consisted in growth from homogeneous units into a heterogeneous organism. While our individual functions are determined by the Cosmos, our general functions arise in the social medium, hence morals emerge. We are thus brought to see why it is that social instincts control and restrain egoistic "impulses." In the physical world we find "Nature, red in tooth and claw," making "the struggle for existence" a relentless conflict for position, in which the weaker are sacrificed that the stronger may survive, because the conditions are unalter-

ably fixed to which life must conform. But in the social realm the conditions of life no longer present similar rigidity. Being a province wrested from physical nature by the interaction of social forces, the conditions governing the struggle for existence are more largely artificial than natural. We further see that all social progress has consisted in the removal of restrictions by which more equal opportunities have given greater scope to the development of natural capacities. Thus the struggle for existence under social relations becomes transformed into a constantly progressive social selection of wider freedom to each, leaving to the Social Organism the interblending of diverse efforts to the uplifting of the race into a grander harmony than the external world can present, and the harbinger of a future when morality and sociality will be seen to be interconvertible terms evolved under one general law.

We thus find the genesis of the idea of "right" consisting subjectively of a constantly evolving moral sense, so to speak, of equal claims and equal dues; and objectively as adaptation to the requirements of ideal social relations; hence, giving us the basis of morality in the process of natural selection as *the Law of Equal Freedom*. This cannot be identified with the Hedonistic formula of pleasure as the source of action without indulging in a looseness of expression unwarranted by scientific accuracy; for here we have a universal law meeting the prescribed requirements based upon facts, and found upon verification to contain nothing not in its concrete as shown in social growth; and demanding for more perfect adaptation but the abolition of artificial restrictions, whereby there may be free scope to "the survival of the fittest."

Notwithstanding such eminent Utilitarians as Hume, Bentham, Mill, and Bain agree that "morality is determined to make sentiment" (Hume); where "proof is impossible as it is needless" (Bentham); as "no reason can be given why the external happiness is desirable beyond the fact that each one desires his own happiness" (Mill); because "it is an ultimate and final assumption" (Bain);—we may confidently deny its scientific accuracy. If *sentiment* be the basis, whence the sentiment and the reasons for its varied expression? In finding the genesis of sentiment and



sympathy as concomitant phenomena in the evolution of life we discover their natural basis. The Hedonist theory of action resembles a Bridgewater Treatise on the adaptation of the eye to sight, both ignoring evolutionary antecedents; the ghost of a "moral sense" figuring in the one, as "design" does in the other. Neither Hobbes nor Paley are teachers to-day.

Ethics is not a mere collection of empirical facts, but a science correlated with other sciences and like them genetically based in physical nature, an abstracted phase of general evolution whose concretes present a twofold aspect, and which finds its place in social physics, having both static and dynamic expression. While wider extension is ever given to "the empire of the dead" in shaping the present, it is only in the sense that "the child is the parent of the man," and does not consist in *instituting* infantile conditions into permanent status. Only in thus finding the basis of morals in physical nature does life in all its fulness truly "consist in a correspondence between outer and inner sequences" by social rather than "a pre-established harmony"; and the future course of evolution becomes irradiated with the conscious light of an ultimate sin, and the "conscious pain" of unrealised desires and aspirations seem to have their rounded end not "in sleep," but in "subjective morality"—the perfection of the race. Thus the long-sought reconciliation between science and religion becomes complete, and the universe of sense and feeling is seen to be an ideal unity. Then we will have solved for us Cervantes's Quixotic paradox:

"I have heard it preached," quoth Sancho, "that God is to be loved with this kind of love for Himself alone, without our being moved to it by hope of reward or fear of punishment; though for my part I am inclined to love and serve Him for what He is able to do for me." 'The devil take thee for a bumpkin,' said Don Quixote, 'thou sayest ever and anon such apt things that one would almost take thee for a scholar.' 'And yet, by my faith,' quoth Sancho, 'I cannot so much as read.'

Kant sought a law purely formal, "an *a priori* principle of the will" without material, or experimental content, but the limitations of thought rendered this impossible. But his law, "Act according to that maxim which you would wish, at the same time, to be a

universal law;" or, "Act as if the maxim of thy action were to become by thy will a universal law,"—ceases to be formal inasmuch as it prescribes *something* as matter, or content, of thought, but it fails to show *why* it should be universal. But in the law of equal freedom we have such a generalisation, though arrived at empirically, which, if it does not contain what we *ought to do*, reveals to reason what we ought *to be*, so far as the limited freedom of Self gives scope to will. We may, therefore, regard this as an innate, an *a priori* principle contained in the very essence of personality. Kant's law, to have an intuitive basis, must be founded on egoistic desires, yet discernible by intelligence to accord with race-maintaining conduct. Personality is primary, social relations secondary, and therefore can never suppress the former, though it may, and does, modify the egoistic impulses to altruistic, or remote, ends, but in so doing leads to higher personality.

One out of the many verifications of this fundamental rule of conduct and underlying transient feelings of pleasure, expediency, or intuitive sanction, may be seen in the unconscious development of the sympathetic feelings proceeding *pari passu* with the evolution of greater freedom. Refer to the execution of Ravallac for the assassination of Henry IV., in 1610. It was a gala day for Paris. Both the desires for pleasure and expediency were surfeited with happiness. From by-street and alley the countless multitude thronged, eager to feast their eyes on the writhing of the tortured victim. In the centre of the public square stood the scaffold. From every window overlooking the scene ladies of high rank competed with the ardor of an opening night at the Royal Opera. The prisoner is bound to the wheel, and every limb separately broken. Then, stretched upon the scaffold, his regicidal hand is cut off, his stomach ripped open, and his entrails burned before his eyes. Still living, faintly gasping under this accumulation of torture, four strong horses are attached to his quivering and broken limbs, and by aid of whips and prods they succeed in dismembering the body in which the spark of life had lingered to the last, his final, despairing cry of agony being greeted with the enthusiastic plaudits of the populace and the waving of perfumed lace-handkerchiefs from the

windows. Since, then, by the same general law by which "all things strive to ascend, and ascend in their striving," social progress has been marked in recognition of greater freedom, not through, but in spite of, the schemes of our social thinkers and moral regulators, and with it we find a development of the sympathetic nature which would cause the most depraved man or woman in our greatest cities to turn pale with horror to-day at such a sight.

In the view here maintained as the basis of moral actions we are presented, moreover, with an ideal for the future, as well as a criterion for past and present, affording a Moral Type under which all social relations become tinged with an ethical character, forecasting an ultimate end ever rising in clearer vision, in more effulgent glory as the recognition of the law of equal freedom is applied to every relation of life, whether religious, political, economic, or social. With a clear understanding of the limitations of personality, and that our much vaunted ego is but a bundle of social instincts and organic aptitudes, we may say in brief, morality knows no higher rule of conduct than this: *Within the lines of equal freedom—be thyself!*

More need not be said save emphasising the lesson. There are vistas opening of social perfection more far-reaching in ethical scope and beauty than prophet's vision ever saw or poet's lyre hymned. It affords us a guide by which we are enabled to see why coercive interference by means of sumptuary enactments work as great havoc with moral evolution as past interference with scientific research did with intellectual growth. In co-ordinating both, it presents an ideal whereby the purely egoistic impulses of our animal natures are subdued to social ends,—an Ideal furnishing alike the incentive and criterion of actions by which the greatest good to each and all may be realised on earth; an Ideal presenting to vision an ever increasing "glory of the human," transcending all myths and schemes of social thinkers, "when men shall beat their swords into ploughshares and their spears into pruning hooks, and learn war no more;" an Ideal under which Equal Freedom is ever seen from age to age to be of wider circumference and personal bearing. And in its conscious application the aristocratic claims of

priestly, political, and economic lords will slink back into the shadows unable to face the bright glare of the noonday sun of Reason shining on an emancipated people living in the mutual bonds of peace and fraternity following the normal evolution of sympathetic natures unchecked by artificial interference and held by reasoned judgment within the broad scope afforded by the *Law of Equal Freedom!*

DYER D. LUM.



## LAU-TSZE'S TAU-TEH-KING.<sup>1</sup>

### THE OLD PHILOSOPHER'S CLASSIC ON REASON AND VIRTUE TRANSLATED.

#### I.

##### 1. REASON'S REALISATION.

**T**HE REASON<sup>2</sup> that can be reasoned is not the eternal Reason. The name that can be named is not the eternal name. The nameless is of heaven and earth the beginning. The name-deter-

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<sup>1</sup> The present translation is as literal as a clear rendering of the sense will permit. But it is to be feared that to those who know little or nothing of Chinese philosophy in general and Lau-Tsze in particular, a perusal of his book on Reason and Virtue will prove disappointing on account of its paradoxical style and apparent lack of connexion. But they may rest sure that if they will endeavor to comprehend the significance of its underlying ideas, which after all are very simple, their efforts will be richly rewarded, and we must bear in mind, when forming an opinion on Lau-Tsze, that he was born 604 B. C.

Lau-Tsze frequently introduces quotations many of which (e. g., Chapter 22) are apparently old. Some are wise saws or homely proverbs, while others may be Lau-Tsze's own poetry.

While the division of the Tau-Teh-King into two parts was, according to Sse-Ma-Ts'ien, made by Lau-Tsze himself, the division into chapters and their headings have been made by the commentators. The latter are not always appropriate but have been preserved not only from respect of tradition, but also because references to the Tau-Teh-King are commonly made to the traditional chapter divisions. The pronoun "its" which frequently appears in the chapter headings refers to Tau, the Reason.

For an exposition of Lau-Tsze's philosophy see *The Open Court*, Nos. 483-485.

<sup>2</sup> The word "Reason" has been capitalised wherever it translates the word *tau*, which, reminding us very strongly of the Greek term λόγος, means "word, path, method, and reason."

mined becomes of the ten thousand things<sup>1</sup> the mother. Therefore it is said:

"He who desireless is found  
The spiritual of the world will sound.  
But he who by desire is bound  
Sees the mere shell of things around."

These two things are the same in source but different in name. Their sameness is called a mystery. Indeed, it is the mystery of mysteries. Of all spirituality it is the door.

## 2. SELF-CULTURE.<sup>2</sup>

When in the world all understand beauty to be beauty, then only ugliness appears. When all understand goodness to be goodness then only badness appears. For

"To be and not to be are mutually conditioned  
The difficult, the easy, are mutually defined.  
The long, the short, are mutually exhibited.  
Above, below, are mutually cognitioned.  
The sound, the voice are mutually coalitioned.  
Before and after are mutually positioned."

Therefore, the holy man abides by non-assertion in his affairs and conveys by silence his instruction. When the ten thousand things arise, verily, he refuses them not. He quickens but owns not. He works but claims, not. Merit he accomplishes, but he does not dwell on it.

"Since he does not dwell on it,  
It will never leave him."

## 3. KEEPING THE PEOPLE QUIET.

Not exalting worth keeps people from rivalry. Not prizing what is difficult to obtain keeps people from committing theft. Not contemplating what kindles desire keeps the heart unconfused. Therefore, the holy man when he governs empties the people's

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<sup>1</sup> "The ten thousand (viz., all) things" is a name for the world in the sense of nature, or concrete reality.

<sup>2</sup> A better heading of this chapter would be "The Relative and the Absolute."

hearts but fills their souls.<sup>1</sup> He weakens their ambitions but strengthens their backbones.<sup>2</sup> Always he keeps the people unsophisticated and without desire. He causes that the crafty do not dare to act. When he acts with non-assertion<sup>3</sup> there is nothing ungoverned.

#### 4. SOURCELESS.

Reason is empty but its use is inexhaustible. In its profundity, verily, it resembleth the father of the ten thousand things.

"It blunts its own sharpness,

Unfolds its own tangles,

It dims its own light,

It becomes one with its dust."<sup>4</sup>

Oh, how calm it seems to remain! I know not whose son it is. Before the Lord, Reason takes precedence.

#### 5. THE FUNCTION OF EMPTINESS.

Heaven and earth exhibit no benevolence; to them the ten thousand things are like straw dogs.<sup>5</sup> The holy man exhibits no benevolence; to him the hundred families are like straw dogs.

Is not the space between Heaven and earth like unto a bellows? It is empty; yet it collapses not. It moves, and more and more comes forth.

"How soon exhausted is

A gossip's idle talk!

And should we not prefer

On the middle path to walk?"<sup>6</sup>

<sup>1</sup> Literally "stomachs." *Sin*, "the heart," is conceived as the seat of desire while *fuh*, "the stomach, the interior, or the soul," is the seat of the mind.

<sup>2</sup> Literally "bones."

<sup>3</sup> For *wu wei*, literally "non-action," meaning non-interference with the natural course of things, see *The Open Court*, No. 484. How much Lau-Tsze insists on resolute activity appears from Chapter 30 and other passages in which "*wu wei*, or non-action, i. e., non-assertion" is enjoined as a principle of action by which everything can be accomplished? (Chapters 3, 37, 48).

<sup>4</sup> This quotation is repeated in Chapter 56.

<sup>5</sup> Straw dogs are supposed to have been made for sacrificial purposes.

<sup>6</sup> The empty space between heaven and earth does not collapse, but abundance of words in gossiping leads to exhaustion.

## 6. THE COMPLETION OF FORM.

"The valley spirit not expires

Mysterious mother 'tis called by the sires

The mysterious mother's door, to boot,

Is called of Heaven and earth the root.

Forever and aye it seems to endure

And its use is without effort, sure."<sup>1</sup>

## 7. DIMMING ITS RADIANCE.

Heaven endures and earth is lasting. And why can Heaven and earth endure and be lasting? Because they do not live for themselves. On that account can they endure.

Therefore the holy man puts his person behind and his person comes to the front. He surrenders his person and his person is preserved. Is it not because he seeks not his own? For that reason he can accomplish his own.

## 8. THE NATURE OF ITS CHANGES.

Superior goodness resembleth water. The water's goodness benefits the ten thousand things, yet it quarreleth not. Because it dwells in places which the multitude of men shun, therefore it is near unto the eternal Reason.

For a dwelling goodness chooses the level. For a heart goodness chooses commotion. When giving, goodness chooses benevolence. In words, goodness chooses faith. In government goodness chooses order. In business goodness chooses ability. In its motion goodness chooses timeliness. It quarreleth not. Therefore, it is not rebuked.

## 9. PRACTISING PLACIDITY.

Holding and keeping full, had that not better be left alone? Handling and keeping sharp, can that wear long? If gold and jewels fill the hall no one can protect it.

<sup>1</sup> This curious quotation may have reference to the worship of some local deity presiding over a spring that never runs dry. The quaint lines gain a peculiar significance by being referred to the Tau as the mysterious mother of the world.



Rich and high but proud, brings about its own misfortune. To accomplish merit and acquire fame, then to withdraw oneself, that is Heaven's Way (viz., Tau).

#### 10. WHAT CAN BE DONE.

He who sustains and disciplines his soul and embraces unity cannot be deranged. Through attention to his vitality and inducing tenderness he can become like a little child. By purifying, by cleansing and profound intuition he can be free from faults.

In loving the people and administering the country he can practise non-assertion. Opening and closing the gates of Heaven he can be like a mother-bird: bright, and white, and penetrating the four quarters, he can be unsophisticated. He quickens them and feeds them. He quickens but owns not. He acts but claims not. He excels but rules not. This is called profound virtue.

#### 11. THE FUNCTION OF THE NON-EXISTENT.

Thirty spokes unite in one nave and on that which is non-existent<sup>1</sup> depends the carriage's utility. Clay is moulded into a vessel and on that which is non-existent depends the vessel's utility. By cutting out doors and windows we build a house and on that which is non-existent depends the house's utility.

Therefore, the existence of things offers opportunities, but that which is non-existent in them renders them useful.

#### 12. ABSTAINING FROM DESIRE.

"The five colors the human eye will blind,  
The five notes the human ear will rend.  
The five tastes the human mouth offend  
Racing and hunting will human hearts turn mad,  
Objects of prize make human conduct bad."

Therefore the holy man attends to the inner and not to the outer. He abandons the latter and chooses the former.

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<sup>1</sup> Viz., the hole in the nave, the hollowness of the vessel, the empty space of windows and doors.

## 13. LOATHING SHAME.

"Favor and disgrace bode awe."

Esteeming the body bodes great trouble."

What is meant by "favor and disgrace bode awe"?

Favor humiliates. Its gain bodes awe; its loss bodes awe.

This is meant by "favor and disgrace bode awe."

What is meant by "Esteeming the body bodes great trouble"?

I have trouble because I have a body. When I have no body, what trouble remains?

Therefore, if one administers the empire as he cares for his body, he can be entrusted with the empire. [If he with love as he cares for his body administers the empire, he can be entrusted with the empire.<sup>1</sup>

## 14. PRAISING THE MYSTERIOUS.

We look at Reason and do not see it; its name is colorless.

We listen to Reason and do not hear it; its name is soundless.

We grope for Reason and do not grasp it; its name is bodiless.<sup>2</sup>

These three things cannot further be analysed. Thus they are combined and conceived as a unity whose surface is not clear and whose depth is not obscure.<sup>3</sup>

Forever and aye Reason remains unnamable, and again and again it reduces things to non-existence. This is called the form of the formless, the image of the imageless. This is called transcendently abstruse.

In front its beginning is not seen. In the rear its end is not seen.

<sup>1</sup> It is probable that this repetition which is contained in all the oldest manuscripts crept into the text through the mistake of an ancient copyist.

<sup>2</sup> The three words *si* (colorless, placid), *sh* (soundless, rare, thin), and *whi* (minute, fading away, incorporeal) have given rise to much comment, because Abel Rémusat believed to discover in them the name Jehovah. See his *Memoir Sur la vie et les opinions de Lao-Ts'eu*, and compare Stanislaus Julien's Introduction to his translation of the *Tau-Teh-King*, pp. ii-viii.

<sup>3</sup> Viz., it is to a superficial enquirer incomprehensible, but to one who enters deeply into it, quite simple.

By holding fast to the Reason of the ancients, the present is mastered and the origin of the past understood. This is called Reason's clue.

### 15. THE REVEALERS OF VIRTUE.

Those of yore who have succeeded in becoming masters are subtle, spiritual, profound, and penetrating. On account of their profundity they cannot be understood. Because they cannot be understood, therefore I endeavor to make them intelligible.

How they are cautious! Like men in winter crossing a river. How reluctant! Like men fearing in the four quarters their neighbors. How reserved! They behave like guests. How elusive! They resemble ice when melting. How simple! They resemble unseasoned wood. How empty! They resemble the valley. How obscure! They resemble troubled waters.

Who by quieting can gradually render muddy waters clear? Who by stirring can gradually quicken the still?

He who keeps this Reason is not anxious to be filled. Since he is not filled, therefore he can grow old and need not be newly fashioned.

### 16. RETURNING TO THE ROOT.

He who arrives at vacuity's summit, guards his tranquillity firmly.

All the ten thousand things arise, and I see them return. Now they bloom in bloom, but each one homeward returneth to its root.

Returning to the root means rest. It signifies the return according to destiny. Return according to destiny means the eternal. Knowing the eternal means enlightenment. Not knowing the eternal causes passions to rise; and that is evil.

Knowing the eternal renders comprehensive. Comprehensive means broad. Broad means royal. Royal means heavenly. Heavenly means Reason. Reason means lasting. Thus the decay of the body implies no danger.

### 17. SIMPLICITY IN HABITS.

Where great sages are (in power), the subjects do not notice their existence. Where there are lesser sages, the people are at-

tached to them; they praise them. Where still lesser ones are, the people fear them; and where still lesser ones are, the people despise them. For it is said:

"If your faith be insufficient, verily, you will receive no faith."

How reluctantly sages consider their words! Merit they accomplish; deeds they perform; and the hundred families think: "We are independent; we are free."

#### 18. THE PALLIATION OF VULGARITY.

When the great Reason is obliterated, we have benevolence and justice. Prudence and circumspection appear, and we have much hypocrisy. When family relations no longer harmonise, we have filial piety and paternal love. When the country and the clans decay through disorder, we have loyalty and allegiance.

#### 19. RETURNING TO SIMPLICITY.

Abandon your saintliness; put away your prudence; and the people will gain a hundred-fold!

Abandon your benevolence; put away your justice; and the people will return to filial devotion and paternal love!

Abandon your scheming; put away your gains; and thieves and robbers will no longer exist.

These are the three things in comparison to which we deem culture insufficient. Therefore it is said:

"Hold fast to that which will endure.

Show thyself simple, preserve thee pure,

Thy own keep small, thy desires poor."

#### 20. DIFFERENT FROM THE VULGAR.

Abandon learnedness and you have no vexation. The "yes" compared with the "yea," how little do they differ! But the good compared with the bad, how much do they differ!

What the people dread cannot be dreadful. How great is their desolation. Alas! it has not yet reached its limit.

The multitude of men are happy, so happy, as though celebrating a great feast. They are as though in springtime ascending



a tower. I alone remain quiet, alas! like one that has not yet received an encouraging omen. I am like unto a babe that does not yet smile.

Forlorn am I, O, so forlorn! It appears that I have no place whither I may return home.

The multitude of men all have plenty and I alone appear empty. Alas! I am a man whose heart is foolish.

Ignorant am I, O, so ignorant! Common people are bright, so bright, I alone am dull.

Common people are smart, so smart, I alone am confused, so confused.

Desolate am I, alas! like the sea. Adrift, alas! like one who has no place where to stay.

The multitude of men all possess usefulness. I alone am awkward and a rustic too. I alone differ from others, but I prize seeking sustenance from our mother.

## 21. EMPTYING THE HEART.

"Vast virtue's form

Follows Reason's norm.

And Reason's nature

Is vague and eluding.

How eluding and vague

All types including.

How vague and eluding!

All beings including.

How deep, and how obscure.

It harbors the spirit pure,

Whose truth is ever sure,

Whose faith abides for aye

From of yore until to-day.

Its name is without cessation.

It watches the world's formation."

Whereby do I know that it watches the world's formation?  
By this same Reason!

## 22. HUMILITY'S INCREASE.

"The deficient will recuperate.

And the crooked shall be straight.

The empty find their fill.

The worn with strength will thrill.

Who have little shall receive.

Who have much will have to grieve."

Therefore the holy man embraces unity and becomes for all the world a model. He is not self-displaying, and thus he shines. He is not self-approving, and thus he is distinguished. He is not self-praising, and thus he acquires merit. He is not self-glorifying, and thus he excels. Since he does not quarrel, therefore no one in the world can quarrel with him.

That saying of the ancients: "The deficient will recuperate," is it in any way vainly spoken? Verily, they will recuperate, but they must return home.

## 23. EMPTINESS AND NON-EXISTENCE.

To be taciturn is the natural way.

A hurricane does not outlast the morning. A cloudburst does not outlast the day. Who causes these events but Heaven and Earth? If even Heaven and Earth cannot be unremitting, will not man be much less so?

Therefore one who pursues his business with Reason, the man of Reason, is identified with Reason. The man who pursues his business with virtue is identified with virtue. The man who pursues his business with loss is identified with loss. When identified with Reason, he forsooth joyfully embraces Reason; when identified with virtue, he forsooth joyfully embraces virtue; and when identified with loss, he forsooth joyfully embraces loss.

"He whose faith is insufficient shall not find faith."

## 24. TROUBLES IN (THE EAGERNESS TO ACQUIRE) MERIT.

A man on tiptoe cannot stand. A man astride cannot walk. A self-displaying man cannot shine. A self-approving man cannot

be distinguished. A self-praising man cannot acquire merit. A self-glorying man cannot excel. Before the tribunal of Reason he is like offal of food and like an excrescence in the system which all people are likely to detest. Therefore, one who has Reason is without attachment.

### 25. IMAGING THE MYSTERIOUS.

There is Being that is all-containing, which precedes the existence of Heaven and earth. How calm it is! How incorporeal! Alone it stands and does not change. Everywhere it goes without reaching limits, and can on that account become the world's mother. I know not its name. Its character is defined as Reason. When obliged to give it a name, I call it the Great. The Great I call the Evasive. The Evasive I call the Distant. The Distant I call the Returning.

The saying goes: Reason is great, Heaven is great, Earth is great, and Royalty also is great. There are four things in the world that are great, and Royalty is one of them.

Man's standard is the Earth. The Earth's standard is Heaven. Heaven's standard is Reason. Reason's standard is the intrinsic.

### 26. THE VIRTUE OF DIGNITY.

The heavy is of the light the root, and rest is motion's master.

Therefore the holy man in his daily walk does not depart from the baggage train.<sup>1</sup> Although he may have magnificent sights, he calmly sits with liberated mind.

But how is it with the master of the ten thousand chariots? In his personal conduct he makes light of the empire. He makes light of it and will lose his vassals. He is passionate and will lose the throne.

### 27. THE FUNCTION OF SKILL.

"Good travellers leave not trace nor track,

Good speakers, in logic show no lack,

Good counters need no counting rack.

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<sup>1</sup> "Not to depart from the baggage waggons" has become proverbial in Chinese and means "to preserve one's dignity."

Good lockers bolting bars need not,  
 Yet none their locks can loose.  
 Good binders need not string nor knot,  
 Yet none unties their noose."

Therefore the holy man is always a good saviour of men, for there are no outcast people. He is always a good saviour of things, for there are no outcast things. This is called concealed enlightenment.

Therefore the good man is the bad man's instructor, while the bad man is the good man's capital. He who does not esteem his instructor, and he who does not love his capital, although he may be prudent, is greatly mistaken. This I call significant spirituality.

#### 28. RETURNING TO SIMPLICITY.

"Who his manhood shows  
 And his womanhood knows<sup>1</sup>  
 Becomes the empire's river.  
 Is he the empire's river,  
 He will from virtue never deviate,  
 And home he turneth to a child's estate.

"Who his brightness shows  
 And his blackness knows  
 Becomes the empire's model.  
 Is he the empire's model,  
 Of virtue never he'll be destitute,  
 And home he turneth to the absolute.

"Who knows his fame  
 And guards his shame  
 Becomes the empire's valley.  
 Is he the empire's valley,  
 For e'er his virtue will sufficient be,  
 And home he turneth to simplicity."

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<sup>1</sup> Manhood represents strength, and womanhood weakness.



By scattering about his simplicity he makes (of the people) vessels of usefulness. The holy man employs them as officers; for a great administration does no harm.

#### 29. NON-ASSERTION.

When one desires to take in hand the empire and make it, I see him not succeed. The empire is a divine vessel which cannot be made. One who makes it, mars it. One who takes it, loses it. And it is said of beings:

"Some are obsequious, others move boldly,

Some breathe warmly, others coldly,

Some are strong and others weak,

Some rise proudly, others sneak."

Therefore the holy man abandons pleasure, he abandons extravagance, he abandons indulgence.

#### 30. BEWARE OF WAR.

He who with Reason assists the master of mankind will not with arms conquer the empire. His methods (are such as) invite requital.

Where armies are quartered briars and thorns grow. Great wars unfailingly are followed by famines. A good man acts resolutely and then stops. He ventures not to take by force. He is resolute but not boastful; resolute but not arrogant; resolute because he cannot avoid it; resolute but not violent.

Things thrive and then grow old. This is called un-Reason. Un-Reason soon ceases.

#### 31. QUELLING WAR.

Even beautiful arms are unblest among tools, and people had better shun them. Therefore he who has Reason does not employ them.

The superior man when residing at home honors the left. When using arms, he honors the right. Arms are unblest among tools and not the superior man's tools. Only when it is unavoidable he uses them. Peace and quietude he holds high. He con-

quers but rejoices not. Rejoicing at a conquest means to enjoy the slaughter of men. He who enjoys the slaughter of men will most assuredly not obtain his will in the empire.

[In propitious events the left is exalted. In evil events the right is exalted. The assistant army-leader sits to the left. The superior army-leader sits to the right. This indicates that the position of superior power is here as in the arrangement of funeral ceremonies. The slaughter of many multitudes of men must be deplored with sorrow and lamentation, and the conqueror in a battle must be placed according to the funeral ceremonial.]<sup>1</sup>

### 32. THE VIRTUE OF HOLINESS.

Reason is always ineffable. Although its simplicity seems insignificant, the whole world does not dare to suppress it. If princes and kings could keep it, the ten thousand things would of themselves pay homage. Heaven and Earth would unite in dropping sweet dew, and the people with no one to command them would of themselves be righteous.

With the beginning of cosmic order Reason became name-determined. Whenever the name-determined in its turn acquires existence, one learns to know when to stop. By knowing when to stop, one avoids danger.

To illustrate Reason's relation to the world we compare it to streamlets and creeks in their course towards great rivers and the ocean.

### 33. THE VIRTUE OF DISCRIMINATION.

One who knows others is clever, but one who knows himself is enlightened.

One who conquers others is powerful, but one who conquers himself is mighty.

One who knows sufficiency is rich.

One who pushes with vigor has will, one who loses not his place endures. One who may die but will not perish, is endowed with life for ever.

<sup>1</sup> This passage is supposed to be written by Wang Pi as a comment and has crept into the text by mistake.

34. TRUST IN ITS PERFECTION.

How all-pervading is the great Reason! It can be on the left and it can be on the right. The ten thousand things depend upon it for their life, and it refuses them not. When its merit is accomplished it assumes not the name. Lovingly it nourishes the ten thousand things and plays not the lord. Ever desireless it can be classed with the small. The ten thousand things return home to it. It plays not the lord. It can be classed with the great.

Therefore, the holy man unto death does not make himself great and can thus accomplish his greatness.

35. THE VIRTUE OF BENEVOLENCE.

"Who holdeth fast to the great Form,  
Of him the world will come in quest:  
For there they never meet with harm,  
But find contentment, comfort, rest."

Music with dainties makes the passing stranger stop.<sup>1</sup>

When Reason comes from the mouth, how tasteless it is! It has no flavor. When looked at, there is not enough to be seen; when listened to, there is not enough to be heard, but its use is inexhaustible.

36. SECRET ENLIGHTENMENT.

That which is about to contract has surely been first expanded. That which is about to weaken has surely been first strengthened. That which is about to fall has surely been first raised. That which is about to be despoiled has surely originally been endowed.

This is called secret enlightenment.

The tender and the weak conquer the hard and the strong.

As the fish should not escape from the deep, so the country's sharp tools should not be shown to the people.

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<sup>1</sup> The connexion of this sentence with the following paragraph is the thought that music and dainties are to the taste of the people, but Reason is useful.

## 37. ADMINISTRATION OF GOVERNMENT.

Reason always practises non-assertion, and there is nothing that remains undone.

If princes and kings could keep Reason, the ten thousand things would of themselves be reformed. While being reformed they would yet be anxious to stir; but I would restrain them by the simplicity of the nameless.

"The simplicity of the unexpressed

Will purify the heart of lust.

Where there's no lust there will be rest,

And all the world will thus be blest."

## II.

## 38. DISCOURSING ON VIRTUE.

Superior virtue in un-virtue. Therefore, it has virtue. Inferior virtue never loses sight of virtue. Therefore it has no virtue. Superior virtue is non-assertion and without pretension. Inferior virtue asserts virtue and makes pretensions.

Superior benevolence acts but makes no pretensions.

Superior justice acts and makes pretensions. The superior propriety acts and when no one responds to it, it stretches its arm and enforces its rules. Thus it loses Reason and then virtue appears. It loses virtue and then benevolence appears. It loses benevolence and then justice appears. It loses justice and then propriety appears. The rules of propriety are the semblance of loyalty and faith, and the beginning of disorder.

Quick-wittedness is the (mere) flower of Reason, but of ignorance the beginning.

Therefore a great man abides by the solid and dwells not in the external. He abides in the fruit and dwells not in the flower. Therefore he discards the latter and chooses the former.

## 39. THE ROOT OF ORDER.

From of old these things have obtained oneness:

"Heaven through oneness has become pure.

Earth through oneness can endure.



Minds through oneness their souls procure.  
Valleys through oneness repletion secure.

"All creatures through oneness to life have been called.  
And kings were through oneness as models installed."

Such is the result of oneness.

"Were Heaven not pure it might be rent.  
Were earth not stable it might be bent.  
Were minds not ensouled they'd be impotent.  
Were valleys not filled they'd soon be spent.  
When creatures are lifeless who can their death prevent?  
Are kings not models, but on highness bent,  
Their fall, forsooth, is imminent."

Thus, the noble come from the commoners as their root, and the high rest upon the lowly as their foundation. Therefore, princes and kings call themselves orphans, widowers, and unworthies. Is this not because they take lowliness as their root?

The several parts of a carriage are not a carriage.<sup>1</sup>

Those who have become a unity are neither anxious to be praised with praise like a gem, nor disdained with disdain like a stone.

#### 40. AVOIDING ACTIVITY.

"Homeward is Reason's course,  
Weakness is Reason's force."

Heaven and earth and the ten thousand things come from existence, but existence comes from non-existence.

#### 41. SAMENESS IN DIFFERENCE.

When a superior scholar hears of Reason he endeavors to practise it. When an average scholar hears of Reason he will sometimes keep it and sometimes lose it. When an inferior scholar hears of reason he will greatly ridicule it. Were it not thus ridiculed, it would as Reason be insufficient. Therefore the poet says:

<sup>1</sup> The simile of the unity of a chariot as being, like the unity of a soul, not any one of its parts, is used also in the *The Milinda Pañha*, one of the most important books of the Buddhist canon.

"The reason-enlightened seem dark and black,  
The reason-advanced seem going back,  
The reason-straight-levelled seem rugged and slack.

"The high in virtue resemble a vale,  
The purely white in shame must quail,  
The broadest virtue seems to fail.

"The solidest virtue seems not alert,  
The simplest truth appears pervert,  
The greatest square will rightness desert.

"The largest vessel is not yet complete,  
The loudest sound is not speech replete,  
The greatest form has no shape concrete."

Reason is hidden and has no name. Yet Reason alone is good for imparting and completing.

#### 42. REASON'S MODIFICATIONS.

Reason begets unity; unity begets duality; duality begets trinity; and trinity begets the ten thousand things.

The ten thousand things bear the negative principle and embrace the positive principle, while the immaterial breath renders them harmonious.

That which the people find odious, to be an orphan, a widower, or to be unworthy, kings and princes select as their titles. Thus seeming loss is but gain. Seeming gain is but loss.

What others have taught I teach also. The strong and aggressive do not die a natural death; but I shall expound the doctrine's foundation.

#### 43. ITS UNIVERSAL APPLICATION.

The world's weakest overcomes the world's hardest. Non-existence enters into the impenetrable. Thereby I comprehend of non-assertion the advantage, and of silence the lesson. There are few in the world who obtain the advantage of non-assertion.

44. SETTING UP PRECEPTS.

"Name or person, which is more near?  
Person or fortune, which is more dear?  
Gain or loss, which is more sear?

"Extreme dotage leadeth to squandering,  
Hoarded wealth inviteth plundering.

"Who is content incurs no humiliation,  
Who knows when to stop risks no vitiation,  
Forever lasteth his duration."

45. GREATEST VIRTUE.

"The greatest perfection seems imperfect,  
But its work undecaying remaineth.  
The greatest fulness is emptiness-checked,  
But its work 's not exhausted nor waneth."

Thus, the greatest straightness resembleth crookedness. The greatest mastery resembleth apprenticeship. The greatest eloquence resembleth stammering.

Motion conquers cold. Quietude conquers heat. Clearness and purity are the world's standard.

46. MODERATION OF DESIRE.

When the world possesses Reason, race horses are reserved for hauling dung. When the world is without Reason, war horses are bread in the common.

No greater sin than yielding to desire. No greater misery than discontent. No greater calamity than acquisitiveness.

Therefore, he who knows the contentment of content is always content.

47. VIEWING THE DISTANT.

"Without passing out of the gate  
The world's course I prognosticate.  
Without peeping through the window,

The heavenly Reason I contemplate.  
 The further one goes,  
 The less one knows."

Therefore, the sage does not travel, and yet he has knowledge. He does not see the things, and yet he defines them. He does not labor, and yet he completes.

#### 48. FORGETTING KNOWLEDGE.

He who seeks learnedness will daily increase. He who seeks Reason will daily diminish. He will diminish and continue to diminish until he arrives at non-assertion. With non-assertion there is nothing that he cannot achieve. When he takes the empire, it is always because he uses no diplomacy. He who uses diplomacy, is not fit to take the empire.

#### 49. TRUST IN VIRTUE.

The sage never possesses his heart. The hundred families' hearts he makes his heart.

The good I meet with goodness; the bad I also meet with goodness; for virtue is good. The faithful I meet with faith; the faithless I also meet with faith; for virtue is faithful.

The sage dwells in the world anxious, very anxious in his dealings with the world. He universalises his heart and the hundred families fix upon him their ears and eyes. The sage is as a child among them all.

#### 50. THE ESTIMATION OF LIFE.

Going forth is life; coming home is death.

Three in ten are pursuers of life; three in ten are pursuers of death; three in ten of the men that live pass into the realm of death.<sup>1</sup>

Now, what is the reason? It is because they live life's intensity.

<sup>1</sup> We interpret this passage to mean that nine in ten spoil their lives; three because bent on life for life's sake, three ruining themselves, and three actually dying. There is only one in ten who esteems life in the right way.



Why? I understand that one who takes good care of his life, when travelling on land will not fall in with the rhinoceros or the tiger. When entering an army he need not fear armed soldiers. The rhinoceros finds no place where to insert its horn. The tiger finds no place where to lay his claws. The soldier finds no place where to thrust his blade. The reason is that he does not belong to the realm of death.

### 51. NURSING VIRTUE.

Reason quickens all creatures. Virtue feeds them. Reality shapes them. The forces complete them. Therefore among the ten thousand things there is none that does not esteem Reason and honor virtue.

Since the esteem of Reason and the honoring of virtue is by no one commanded, it is forever spontaneous. Therefore it is said that Reason quickens all creatures, while virtue feeds them, raises them, nurtures them, completes them, matures them, rears them, and protects them.

To quicken but not to own, to make but not to claim, to raise but not to rule, this is called profound virtue.

### 52. RETURNING TO THE ORIGIN.

When the world takes its beginning, Reason becomes the world's mother.

When he who knows his mother, knows in turn that he is her child, and when he who is quickened as a child, in turn keeps to his mother, to the end of life, his person is not in danger. When he closes his mouth, and shuts his sense-gates, in the end of life, his person affords no trouble; but when he opens his mouth and meddles with affairs, in the end of life his person cannot be saved.

Who beholds his smallness is called enlightened. Who preserves his tenderness is called strong. Who uses Reason's light and returns home to its enlightenment does not surrender his person to perdition. This is called practising the eternal.

### 53. GAINING INSIGHT.

If I have too little knowledge of walking in the great Reason, I have merely to be afraid of self-assertion.

The great Reason is very plain, but people are fond of by-paths.

When a palace is very splendid, the fields are very weedy and granaries very empty.

To wear ornaments and gay clothes, to carry sharp swords, to be excessive in drinking and eating, to have a redundancy of costly articles, this is the pride of robbers. Surely this is un-Reason!

#### 34. THE CULTIVATION OF INTUITION.

"What is well planted is not uprooted;  
What's well preserved cannot be looted!"

By sons and grandsons the sacrificial celebrations shall not cease.

Who cultivates Reason in his person, his virtue is genuine. Who cultivates it in his house, his virtue is overflowing. Who cultivates it in his township, his virtue is lasting. Who cultivates it in his country, his virtue flourishes. Who cultivates it in the world, his virtue is universal.

Therefore, by one's person one tests persons. By one's house one tests houses. By one's township one tests townships. By one's country one tests countries. By one's world one tests worlds.

How do I know that the world is such? Through Reason.

#### 35. THE WARRANT OF THE MYSTERIOUS.

He who possesses virtue in all its solidity is like unto a little child. Venomous reptiles do not sting him, fierce beasts do not seize him. Birds of prey do not strike him. His bones are weak, his sinews tender, but his grasp is firm. He does not yet know the relation between male and female, but his virility is strong. Thus his metal grows to perfection. A whole day he might cry and sob without growing hoarse. This shows the perfection of his harmony.

To know the harmonious is called the eternal. To know the eternal is called enlightenment.

To increase life is called a blessing, and heart-directed vitality is called strength, but things vigorous are about to grow old and I call this un-Reason.

Un-Reason soon ceases!

## 56. THE VIRTUE OF THE MYSTERIOUS.

One who knows does not talk. One who talks does not know.  
He keeps his mouth shut and his sense-gates closed.

He blunts his own sharpness.

Unfolds his own tangles.

He dims his own light.

He identifies himself with his own dust."<sup>1</sup>

This is called profound identification.

Thus he is inaccessible to friendship and also inaccessible to enmity. He is inaccessible to profit and inaccessible to loss. He is also inaccessible to favor and inaccessible to disgrace. Thus he becomes world-honored.

## 57. SIMPLICITY IN HABITS.

With rectitude one governs the state; with craftiness one leads the army; with non-diplomacy one takes the empire. How do I know that it is so? Through Reason.

The more restrictions and prohibitions are in the empire, the poorer grow the people. The more weapons the people have, the more troubled are the homes of the country. The more there is cunning and skill, the more startling events will happen. The more mandates and laws are enacted, the more there will be thieves and robbers.

Therefore the holy man says: I practise non-assertion, and the people of themselves reform. I love quietude, and the people of themselves become righteous. I use no diplomacy, and the people of themselves become rich. I have no desire, and the people of themselves remain simple.

## 58. ADAPTATION TO CHANGE.

Whose government is unostentatious, quite unostentatious, his people will be prosperous, quite prosperous. Whose government is prying, quite prying, his people will be needy, quite needy.

<sup>1</sup> The same quotation as in Chapter 4.

Misery, alas! rests upon happiness. Happiness, alas! underlies misery. But who foresees the catastrophe? It will not be prevented!

When the righteous turn rascals and the good turn evil-doers, it bodes the degeneration of mankind. Its day is already lasting.

Therefore the sage is square but not sharp, strict but not obnoxious, upright but not restraining, bright but not dazzling.

#### 59. HOLD FAST TO REASON.

In governing men and in attending to Heaven, there is nothing like moderation. Now since of moderation it is said that it must be early acquired, if early acquired, it is richly accumulated virtue. If one has richly accumulated virtue, then nothing is unconquerable. If there is nothing unconquerable, then no one knows his limits. If no one knows his limits, one can possess the country. If one possesses the mother of the country (moderation), one can thereby last long. This is called having deep roots and firm fibres; of long life and lasting comprehension this is the way.

#### 60. HOW TO KEEP ONE'S PLACE.

Govern a great country as you would fry small fish.<sup>1</sup> If with Reason the empire is managed, its ghosts will not spook. Not only will its ghosts not spook, but its gods will not harm men. Not only will its gods not harm men, but its sages will also not harm men. Since neither will do harm, therefore their virtues will be combined.

#### 61. THE VIRTUE OF HUMILITY.

A great state, one that lowly flows, becomes the empire's union, and the empire's wife. The wife always through quietude conquers her husband. As quietude is stooping, thus a great state through stooping to small states takes the small states, and small states, by stooping to great states, will take great states.

<sup>1</sup> Viz., neither gut nor scale them.



Therefore, some stoop to conquer; others stoop in consequence of conquering.

A great state desires no more than to unite and feed the people; a small state desires no more than to devote itself to the service of the people; but that both may obtain their wishes, the greater one must stoop.

## 62. PRACTISE REASON.

It is Reason that is the ten thousand things' asylum, the good man's wealth, the bad man's stay.

With beautiful words one can sell. With honest conduct one can do still more.

If a man be bad, why should he be thrown away? Therefore, an emperor was elected and three ministers appointed; but better than holding before one's face the jade table (of the ministry) and riding with four horses, is sitting still and propounding the eternal Reason.

Why do the ancients prize this Reason? Is it not, say, because when sought it is obtained and the sinner thereby can be saved? Therefore it is the world's glory.

## 63. CONSIDER BEGINNINGS.

Assert non-assertion. Practise non-practice. Taste non-taste. Make great the small. Make much the little.

Respond to hostility with virtue.

Contemplate a difficulty when it is easy. Manage a great thing when it is small.

The world's most difficult undertakings necessarily originate while easy, and the world's greatest undertakings necessarily originate while small.

Therefore the sage to the end does not venture to play the great, and thus he can accomplish his greatness. As one who lightly promises rarely keeps his word, so he to whom many things are easy will necessarily encounter many difficulties. Therefore, the holy man regards everything as difficult, and thus to the end encounters no difficulties.

## 64. MIND THE INSIGNIFICANT.

What is still at rest is easily kept quiet. What has not as yet appeared is easily prevented. What is still feeble is easily broken. What is still scant is easily dispersed.

Treat things before they exist. Regulate things before disorder begins. The spreading tree originates from a tiny fibre. A tower of nine stories rises from a small mound of earth. A thousand miles' journey begins with a foot.

He that makes mars. He that grasps loses.

The holy man does not make; therefore he mars not. He does not grasp; therefore he loses not. The people when undertaking an enterprise are always near completion, and yet they fail. Remain careful to the end as in the beginning and you will not fail in your enterprise.

Therefore the holy man desires to be desireless, and does not prize articles difficult to obtain. He learns, not to be learned, and tries again what the multitudes of the people give up. He assists the ten thousand things in their natural development, but he does not dare to interfere.

## 65. THE VIRTUE OF SIMPLICITY.

The ancients who were well versed in Reason did not thereby enlighten the people; they intended thereby to make them simple-hearted.

If people are difficult to govern, it is because they are too smart. To govern the country with smartness is the country's curse. To govern the country without smartness is the country's blessing. He who knows these two things is also a model, like the ancients. Always to know them is called profound virtue.

Profound virtue is deep, forsooth. It is far-reaching, forsooth. It is to everything reverse, forsooth. But then it will procure great obedience.

## 66. PUTTING ONESELF BEHIND.

That rivers and oceans can of the hundred valleys be kings is due to their excelling in lowliness. Thus they can of the hundred valleys be the kings.

Therefore the sage, when anxious to be above the people, must in his words keep underneath them. When anxious to lead the people, he must with his person keep behind them.

Therefore, the sage dwells above, but the people feel not the burden. He is ahead, but the people suffer no harm. Therefore the world rejoices in exalting him without tiring. Because he strives not, no one in the world will strive with him.

#### 67. THE THREE TREASURES.

All in the world call my Reason greatly abnormal, but it resembles the abnormal only because it is great. Did it resemble the normal, how lasting, indeed, would its mediocrity be!

I have three treasures which I preserve and treasure. The first is called compassion. The second is called economy. The third is called not daring to come in the world to the front. The compassionate can be brave; the economical can be generous; those who dare not come to the front in the world can become complete as chief vessels.

Now, if people discard compassion and are brave; if they discard economy and are generous; if they discard modesty and are ambitious, they will surely die!

Now, the compassionate will in the attack be victorious, and in the defence be firm. Heaven when about to save one will with compassion protect him.

#### 68. COMPLYING WITH HEAVEN.

He who excels as a commander is not warlike. He who excels as a fighter is not wrathful. He who excels in conquering the enemy does not strive. He who excels in employing men is lowly.

This is called the virtue of those who do not strive. This is called utilising men's ability. This is called complying with Heaven—since olden times the highest.

#### 69. THE FUNCTION OF THE MYSTERIOUS.

A military expert has said: "I dare not act as host but act as guest.<sup>1</sup> I dare not advance an inch, but I withdraw a foot."

<sup>1</sup> Viz., "I am reserved," I allow the enemy to open hostilities. But when hos-

This is called marching without marching, threatening without arms, charging without hostility, seizing without an army.

No greater misfortune than making light of the enemy! When we make light of the enemy, it is almost as though we had lost our treasure—(compassion).

Thus, if matched armies encounter one another, the tenderer one is sure to conquer.

#### 70. DIFFICULT TO UNDERSTAND.

My words are very easy to understand and very easy to practise, but in the world no one can understand, no one can practise them.

Words have an ancestor; Deeds have a master—(Reason). Since he is not understood, therefore I am not understood. Those who understand me are few, and thus I am distinguished.

Therefore the holy man wears wool, and hides in his bosom his jewels.

#### 71. THE DISEASE OF KNOWLEDGE.

To know the unknowable that is elevating. Not to know the knowable that is sickness.

Only by becoming sick of sickness we can be without sickness.

The holy man is not sick, because he is sick of sickness. Therefore he is not sick.

#### 72. HOLDING ONESELF DEAR.

If the people do not fear the dreadful, the great dreadful will come, surely.

Do not render their lives narrow. Do not make their lot wearisome. When it is not made wearisome, then it will not be wearisome.

Therefore, the sage knows himself but does not display himself. He holds himself dear but does not honor himself. Thus he discards the latter and chooses the former.

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ilities can no longer be avoided Lau-Tze proposes to strike resolutely and to end them. Compare Chapter 30.



**73. DARING TO ACT.**

Courage, if carried to daring, leads to killing; courage, if not carried to daring, leads to letting live. Either of these two things is sometimes beneficial, sometimes harmful.

"Why 't is by Heaven rejected,

Who has the reason detected?"

Therefore the holy man also regards it as difficult.

The Heavenly Reason strives not, but it is sure to conquer. It speaks not, but it is sure to respond. It summons not, but it comes of itself. It works patiently but is sure in its designs.

Heaven's net is vast, so vast. It is wide-meshed, but it loses nothing.

**74. OVERCOME DELUSION.**

If the people do not fear death, how can they be frightened by death?

If we make people fear death, and supposing some would (still) dare to rebel, if we seize them for capital punishment, who will dare?

There is always an executioner who kills. Now to take the place of the executioner who kills is taking the place of the great carpenter who hews. If a man takes the place of the great carpenter who hews it will be an exception, indeed, if he does not injure his hand.

**75. HARMED THROUGH GREED.**

The people hunger because their superiors consume too many taxes; therefore they hunger. The people are difficult to govern because their superiors are too meddlesome; therefore it is difficult to govern. The people make light of death on account of the intensity of their clinging to life; therefore they make light of death.

He who is not bent on life is superior to him who esteems life.

**76. BEWARE OF STRENGTH.**

Man during life is tender and delicate. When he dies he is stiff and stark.

The ten thousand things, the grass as well as the trees, are while they live tender and subtle. When they die they are rigid and dry. Thus the hard and the strong are the companions of death. The tender and the delicate are the companions of life.

Therefore, he who in arms is strong will not conquer. When a tree has grown strong it is doomed.

The strong and the great stay below. The tender and the delicate stay above.

#### 77. HEAVEN'S REASON.

Heaven's Reason verily is like stretching a bow. It brings down the high, it lifts up the lowly. It diminishes those who have abundance; it gives to those who are deficient.

Such is Heaven's Reason. It diminishes those who have abundance but makes complete the deficient.

Man's Reason is not so. He diminishes the deficient in order to serve those who have abundance. Where is he who would have abundance for serving the world? It is the man of Reason.

Therefore the holy man acts but does not claim; merit he accomplishes but is not attached, and indeed he is not anxious to display his excellence.

#### 78. TRUST IN FAITH.

In the world nothing is tenderer and more delicate than water. In attacking the hard and the strong nothing will surpass it. There is nothing that herein takes its place. The weak conquer the strong, the tender conquer the rigid. In the world there is no one who does not know it, but no one will practise it. Therefore the holy man says:

"Him who the country's sin makes his,

We hail as priest at the great sacrifice.

Him who the curse bears of the country's failing

As king of the empire we are hailing."

True words seem paradoxical.

## 79. KEEP YOUR OBLIGATIONS.

When a great hatred is reconciled, naturally some hatred will remain. How can this be made good?

Therefore the sage keeps the obligations of his contract and exacts not from others. Those who have virtue attend to their obligations; those who have no virtue attend to their claims.

Heaven's Reason shows no preference but always assists the good man.

## 80. REMAINING IN ISOLATION.

In a small country with few people let there be aldermen and mayors who are possessed of power over men but would not use it. Induce people to grieve at death but do not cause them to move to a distance. Although they had ships and carriages they should find no occasion to ride in them. Although they had armors and weapons they should find no occasion to don them.

Induce people to return to knotted cords<sup>1</sup> and to use them, to delight in their food, to be proud of their clothes, to be content with their homes, and to rejoice in their customs; then in a neighboring state within sight, the voices of the cocks and dogs would be within hearing, yet the people might grow old and die before they visited one another.

## 81. PROPOUNDING THE ESSENTIAL.

True words are not pleasant; pleasant words are not true; good ones are not contentious; contentious ones are not good; instructive ones are not stilted; stilted ones are not instructive.

The holy man hoards not. The more he does for others, the more he owns himself. Therefore by giving to others, he acquires more for himself.

Heaven's Reason is to benefit but not to injure; the holy man's Reason is to act but not to strive.

EDITOR.

<sup>1</sup> The most ancient method of writing.

## LITERARY CORRESPONDENCE.

## FRANCE.

**M.** LOMBROSO publishes, at the same time with the new edition of his *Homme de génie*,<sup>1</sup> the first edition of his *Femme criminelle et la prostitution*. I shall not reproduce here, with regard to the first-mentioned work, the objections which I have already made to certain extravagant features of the theory of the illustrious Professor, but I must reproach him in passing with having placed too much confidence in certain historical witnesses which are open to suspicion (even the legend of Jeanne la Folle, the mother of Charles V., appears groundless) and also with not exercising sufficient criticism. Nothing could be less founded, for example, than the assertion of Mohammed's being diseased. How can M. Lombroso charge the Prophet of the Mussulmans with lack of system in the composition of the holy writings? Does he not know that the verses of the Koran were enounced according as new questions arose which frequently had to be solved differently according to the circumstances or the experience acquired? The Koran is not the book of a man of letters or of a professor.

The whole doctrine should be revised and amended. Dr. TOULOUSE has just opened at Paris a series of inquiries which are destined to control the theories of Lombroso. His first publication bears the title *Enquête médico-psychologique, I. Introduction générale*. —E. Zola.<sup>2</sup> This book is certainly well worked out, but its con-

<sup>1</sup> Georges Carré, publisher. Where the publisher is not mentioned, the books are published by Félix Alcan.

<sup>2</sup> Published by the Société d'éditions scientifiques.



clusions give here and there the impression of timidity and vacillation, and on several points M. Lombroso has addressed to Dr. Toulouse justifiable criticisms. Furthermore, I cannot refrain from censuring the speedy publication of such inquiries. It would have been wiser, I think, to have pursued them privately. The data gathered should have been deposited at the Academy of Medicine, and should not have been made use of until several years after the death of the subjects examined. Then, pabulum would not have been afforded to the press along with hazardous deductions whose real significance the common ignorance of journalists cannot appreciate, a larger number of authors would then undoubtedly have taken part in the inquiry, and both science and the families investigated would have profited by this discretion. The mania for notoriety should not be permitted to corrupt the scientific spirit, nor should the public ever have reason to suspect a desire for pecuniary profit on the part of physicians.

*La Femme criminelle et la prostituée*, written by Lombroso in collaboration with M. G. FERRERO is less a finished and completely co-ordinated book than a collection of facts to be interpreted, from which the learned authors have already drawn many sound conclusions. The thesis of the work is this, that "prostitution is the feminine side of criminality," that is to say, that in woman moral insanity manifests itself rather in sexual excesses and aberrations than in crime: the rarity of the criminal type having as its corollary in the female sex a less frequency of degenerations and cortical irritation. These results are even justified by the study of the normal woman, and may be explained by the fact that her energy and variability are less, and that she is in reality "intellectually and physically a man arrested in development." The last expression does not appear to me a felicitous one. It would be more exact to say that woman has evolved toward her function just as man has evolved toward his, that she has been differentiated from man by evolution in virtue of the rôle she has had to play, which is that of a mother and a conservator of the species. From this fact alone, which the authors do not neglect to emphasise, but to which they do not always give full prominence, are derived the psychological

characters of the female sex which they have analysed with patience and firmly established, although often running counter to our prejudices.

M. H. BERGSON, in his *Matière et mémoire, essai sur la relation du corps à l'esprit*, never intended for a moment to advance the study of a psychological phenomenon, but has sought to formulate a doctrine in philosophy. He does not abide by the facts, endeavoring to explain them by the aid of reason and of experience, but he seeks beyond the facts a "virtual" being or entity which has no existence save in his own sportive imagination. Neither his theory of bodies, which are said to be simple "instruments of action," incapable of preparing or explaining "representation," nor his theory of "pure perception, of "pure memory, and of "stages of consciousness," are presented to the reader with sufficient lucidity, ingenious though they are, and despite the grammatical precision of the author's language. No one, I am afraid, will understand them but himself. The object of his subtle analysis is apparently to reverse the accepted thesis—"memory is a function of the brain and there is nothing but a difference of degree between perception and memory"—and to substitute for it the following: "memory is not a function of the brain but something else, and there is not a difference of degree but a difference of nature between perception and memory," so as to establish by this thesis the existence of *liberty* in some absolutely mysterious region of the ego. But how is this liberty to be understood which "plunges its roots deep into necessity and is organically connected with necessity," these states, so "profound" that one can never reach them, and so "pure" that they vanish before the grasp? How can we be led by such methods to comprehend more clearly the relations of body and mind? How, finally, can inquiries concerning the "intermediary stages between dreams and action" furnish to-day the solution of that ancient and illusive problem?

The peculiar idealism of M. Bergson has found its adversary in the idealism of M. Fouillée. Let us not abandon the solid ground

of experience, or philosophy will soon be nothing more than the science of facts which do not exist.

energy, the unity of life, and the continuity of the soul, a fundamental principle of the universe, and the source of all life.

M. E. Récéjac offers in his *Essai sur les fondements de la connaissance mystique* a curious study of what he calls "mystical experience." This has, according to him, a value comparable to the other methods of knowledge. It would even have a higher value if its position in philosophy were really such as M. Récéjac asserts, for then the mystical act, that is to say, "the union of freedom with imagination," would be the only possible expression of the absolute in human consciousness.

What, then, is the mechanism of the mystical act? It consists, according to the author, in producing, under a definite moral influence, analogical representations and symbols, to which reason which never loses its rights, applies itself, in order to render apparent by their means the relations, "sensible to the heart alone," of our inmost personality with the infinite. The representative action of symbols is thus tantamount to a "moral presence" of the absolute: "it strengthens incomparably the natural powers and intrinsic qualities of the subject." The creations of faith, further, have no empirical objectivity; in that their value does not consist; they are not products of intellection.

M. Récéjac attacks with great freedom all the difficulties of his subject. He does not hesitate, for example, to examine mystical alienation in its relations to pathological accidents and concludes as to the harmlessness of that state, which is normal, he says, although subject to aberrations. His book is interesting on several sides; it is a new witness of the sentimental reaction which is now overrunning our schools. For my part, I accept with M. Récéjac no more than with M. Bergson, the real existence of a thing "which has been created by us but which yet abides outside us." If we assume, to-day, the practical point of view, I do not think that the mystical act has even a genuine religious importance; it remains a subjective state, a privilege of certain souls, or of certain physiological temperaments, a *luxury* of the religious life. A scientific

conception of the world alone will give us the rule of life and the moral teachings necessary to society.

\* \* \*

M. VICTOR HENRY transports us to a different field with his *Antinomies linguistiques*. I recommend the perusal of his little book which forms the second number of the *Bibliothèque de la Faculté des lettres de Paris*. M. Victor Henry is in several respects an innovator. He takes his stand upon exact psychological facts, he has the merit of not allowing himself to depart from the dictates of common sense in treating either of nature, of the origin of language, or of the relations between language and thought. He criticises, for example, with great acuteness, the current phrase "less words than thoughts" as applied to infant speech, and concludes to the contrary that children have fewer ideas than words, a new formula whose value depends on the nature of the psychical facts which the word "ideas" cover.

I quite approve of the distinction which M. Victor Henry establishes between transmitted language, that which we speak from infancy, and which is our thought itself, and acquired language (in its various forms). The dominating thought of his work is that, taking only transmitted language—the only true language, the only speech that really lives in us and merits the attention of the linguist as such—if language is a conscious fact, that is to say, if we speak, knowing what we speak, then the processes of language are unconscious, or, as I should prefer to say, are unperceived by the person speaking. It follows that the special science of language should reject *a priori* "every explanation of linguistic phenomena which in any way presupposes the exercise of the conscious activity of the speaking subject." Each of us wants to say what he says, and knows that he says it; but he introduces in his speech unwittingly continual modifications which most frequently are lost but sometimes are propagated by imitation. Hence the great permanence of language and its mobility at all moments.

\* \* \*

From M. ÉMILE FERRIERE, a scholarly author, and one who is never commonplace, we have *La Cause première d'après les données*



*expérimentales*. The unity of the laws of matter and energy throughout the whole universe, the substantial identity of matter and energy, the unity of life in animals and vegetables, the soul a function of the brain, such were the conclusions of his two preceding works *La Matière et l'énergie* and *La Vie et l'âme*. These conclusions are repeated in the present book and rounded off by a consideration of the first cause. The solution of the problem is based on a distinction between the *true* and the *real* (e. g., *true* triangles and *real* triangles), comprised as two aspects of the same fact. M. Ferrière does not establish his conclusions dialectically but deduces them from a *résumé* of scientific facts, a *résumé* which is his own work. He has a clear and happy way of reattacking the great problems of physics and natural history. Let it be noted that he rejects the theory of evolution (he limits it to the explanation of derived forms and denies its explaining types) with no less energy than he does the theory of successive creations. He justly reminds us that we must say "I do not know." The very impossibility, according to him, of explaining life, that is to say, the necessity of accepting as irreducible facts the principle and the plan (forms) of living beings, leads us to the affirmation of a first cause. But that cause is not transcendent with respect to the world. There are no two substances. In sum, M. Ferrière limits the definition of first cause to metaphysical attributes; he has imported into it neither moral attributes nor intellectual. His metaphysics appears as a necessity of human reason. I have certain reservations with regard to his doctrine, and certain corrections. In any event it is presented with freedom and a positive character in which certain recent systems of philosophy are too often lacking.

There remains to be mentioned, from the pen of M. PAUL JANET, who always remains a master, *Principes de métaphysique et de psychologie* (Delagrave, publisher); from the late L'ABBÉ DE BROGLIE a posthumous work, *Religion et critique*, (Lecoffre, publisher); from PAUL DUPROIX *Kant et Fichte et le problème de l'éducation* (F. Alcan, publisher); and from L'ABBÉ V. CHARBONNEL, *Le Congrès universel des religions en 1900, Histoire d'une idée* (A. Colin, publisher).

PARIS.

LUCIEN ARRÉAT.

CRITICISMS AND DISCUSSIONS.

### THE CONFLICT OF RACES: A REPLY TO CRITICISMS.

In the course of my later studies for a Theory of the Origin, History, and Future of Civilisation, the Conflict of Races has appeared to me to be a fact of fundamental importance. So general a phrase, however, may cover very different theories. So far as I am aware, the theory I have set forth under this name stands alone as a Theory of the Origins of Civilisation. But I read with great interest Professor Flamingo's paper in your last issue adversely criticising the whole conception of a "Conflict of Races, Classes, and Societies." And I would now beg to be allowed to criticise his criticisms from the point of view of my own theory.<sup>1</sup>

To know the nature, and hence the history and future of any set of phenomena we must, as Aristotle insisted with profound insight, endeavor to ascertain its origin. And theories of civilisation can have little, if any, value without knowledge of the conditions under which it originated. Now the chief theories as to the origin of civilisation may be classified and characterised as (1) the *Family-Origin* Theory of Plato and Aristotle; then after the long night of the Christian Dark Ages, (2) the Sixteenth Century *Conquest-Origin* Theory of Bodin; (3) the Seventeenth and the Eighteenth Century *Contract-Origin* Theories of Hooker, Grotius, Hobbes and Locke, etc., to Rousseau; and (4) the *Savage-Origin* Theories now set forth as, for instance, by Dr. Tylor, Sir John Lubbock, and Mr. Spencer. In these current theories civilisation is more or less explicitly regarded as having originated spontaneously and sporadically somewhere, somehow, and somewhen at, it may be,

<sup>1</sup> This theory I first fully stated in 1887 in papers read at the April meeting of the Royal Historical Society, and the September meeting of the British Association, and afterwards published in full or in abstract in their respective *Transactions*. I had, however, partially stated the theory in previous publications,—only a development, as it is, of my *New Philosophy of History*, published in 1875. In exposition of this theory I have also, since 1887, both written papers published in abstract or otherwise in the *Transactions* of the International Congresses of Orientalists, the *Transactions* of the International Folklore Congress, the *Archæological Review*, *Folklore*, and other periodicals, and delivered lectures ("The Conflict of Races: A New Theory of the Origins of Civilisation") at the Philosophical Institution, Edinburgh, reported in the *Scotsman* from November 1893 to January 1894. And I may refer likewise to the essays in my editions of *The Women of Turkey and their Folklore*, Vol. I., 1890, Vol. II., 1891; *Greek Folk-songs*, 1885 and 1886; and *Greek Folk-poetry*, 1896.

various different times and places, and all entirely unconnected with each other. And such appears to be the view of Professor Flinango. But the recent results of Assyriological and Egyptological research have put the question as to the origins of civilisation, and therewith as to the conflict of races, on an entirely new basis. For I think I can say without fear of authoritative contradiction that the main tendency of the results of modern research with reference to the origins of civilisation is to show that it originated in Chaldea and in Egypt at a date which may be at least approximately ascertained, and that from these twin centres all the civilisations, of the Old World at least, were directly or indirectly derived. The question, therefore, as to the origins of civilisation is now one of a scientific rather than merely speculative character. It is the definite question as to the conditions of the origin of definite primary civilisations; and to this question an increasingly verifiable answer is given by the rapidly accumulating results of ethnological and archaeological research. For whatever speculative opinion may be as to the Conflict of Races, not merely the ancient traditions preserved by Berosus, but such physical facts as differences of skull and skeleton, differences of position in burial, and differences in painted, engraved, and sculptured portraiture show that unquestionably *one* of the conditions of the Origin of Civilisation was a difference and conflict of higher and lower races.

The question then arises as to the importance of this condition, and whether it was or not the chief and determining condition of that new species of human association which we term civilisation. But no scientific argument is possible without a preliminary definition of its subject, and such a definition as shall be but a generalisation of the facts investigated. Now, considering the facts revealed by investigation of Chaldean and Egyptian origins, and by a survey of civilisations generally, civilisation may, I think, be defined as *such a relation between higher and lower races or classes of the same race as results in enforced organisation of food-production and distribution, followed by such economic conditions as make possible the planning and execution of great public works, the invention and development of phonetic writing, and the initiation of intellectual development generally.* For I submit that the ultimate economic fact which distinguishes the civilised from the savage state is the change from the precarious savage mode of subsistence on wild-growing fruits gathered, and wild-running game killed as hunger urges, to the cultivation of plants and the domestication of animals, and the storage and regulated distribution of the food-supplies thus obtained. More briefly this is expressed by Mr. Payne in his great work (*The History of the New World Called America*) as "the substitution of an artificial for a natural basis of subsistence." And though he believes—what I doubt—that the ancient American civilisations were wholly unconnected with, or influenced by, those of the Old World, yet he agrees with me that, in the New World also, as, I believe, certainly in the Old, this great economic change was effected under the direction of—so far at least as governing capacities were concerned—a higher race. Of course, the

change from a natural to an artificial basis of subsistence may be partially effected in some tribes under the direction of native chiefs of superior intelligence and power of command. But what I submit is, that there is the reverse of any evidence of such a change having been effected on the large and systematic scale necessary to found a civilisation save under the direction of rulers belonging to a race either ethnologically or economically higher than that from which the labor and thrift were exacted which are no less naturally hateful than economically necessary.

"If it had not occupied the basin of the Mediterranean and united in itself all the useful knowledge which belonged to the three continents of antiquity, the 'white race,' says Professor Fiamingo, 'would never have been able to give to the world the cosmopolitan civilisation which it has given.' No doubt. But also if the race 'occupying the basin of the Mediterranean' had been the black race, it would, judging from our knowledge of the race, not only in the present but during past thousands of years, certainly *not* have 'united in itself all the useful knowledge, etc.' And to say that 'the civilisation which arose along the Mediterranean was not in fact due to this or that race, but was a result of natural geographic conditions,' is simply to ignore all the vast mass of facts which prove that the ruling classes of Chaldea and Egypt belonged to the white race; that those of the Mediterranean civilisations belonged also to that race; and that without the commanding power which the white race has everywhere shown itself capable of exerting over other races, the fundamental economic condition of civilisation—the organisation of food-production and distribution—would never have been realised. It is not worth disputing whether it is, or not, 'quite rare,' as affirmed by Professor Fiamingo, that 'peoples inhabiting contiguous regions present quite different ethnographic characteristics.' It is sufficient to remark that the primary civilisations did, as a matter of fact, originate just at the line of junction of two regions inhabited respectively by peoples—the Equatorial Blacks and the Eurasian Whites—so different in their ethnographic characteristics that according to the ordinary practice of zoological classification they would be distinguished as different species. Who the 'nations belonging to the white race' were or are who have, as the Professor asserts, 'founded civilisations much inferior to the civilisation of the yellow race, or even of the black,' he does not tell us, and I cannot imagine. For I do not know of *any* civilisation, save perhaps the ancient American, which has been founded otherwise than under the direction of men belonging to one or other of the white races. By white races I mean races with either long or short heads, high noses, unprojecting jaws, long hair and beards, and light-colored skins. And for the races thus generally distinguishable—and of which the three great historic branches are: (1) the Archaïans (as I have named the white races of the earlier civilisations), (2) the Semites, and (3) the Aryans—I have proposed the term *Hypethian*, from *ὑπὲρ* 'a bearded man.'

I shall but add that in countries which have reached the higher stages of civilisation the old differences of race have disappeared in the sentiment of a common



nationality arising partly from general intermarriage and partly from equal laws. But the conflict of races has ceased only in a transformation into a conflict of classes, an economic conflict of workers and capitalists,—a conflict of so very real and stern a character as to make Professor Fiamingo's talk of "the *pretended* Conflict of Classes" almost amusing. This conflict has still to run its course; but in the future we may foresee yet another transformation of the social conflict,—a conflict not of different races and classes in fierce opposition, but of different aptitudes in voluntary co-operation, in their due spheres, for the common good,—a sociological analogous to the biological, conflict of anabolic and katabolic energies in the metabolism of a healthy organism.

J. S. STUART-GLENNIE.

HASLEMERE, ENGLAND.

### ANIMAL AUTOMATISM AND CONSCIOUSNESS.

The interest of Prof. Lloyd Morgan's October article lies mainly in its deterministic significance. Some want of clearness, noticeable here and there, is caused by uncertainty as to the precise sense in which the late Professor Huxley used the ambiguous term "automata," and by a rather intricate effort to decide this, and to reach a better definition.

The word "automatic" "has received," says Dr. Augustus Waller, "two diametrically opposed meanings, viz, (1) Self-moving, self-arising, spontaneous, in 'literal translation of *αὐτόματος* ; (2) automaton-like, that is to say, like a mechanism that appears to be self-moving, but that we know to be moved by secret 'springs and hidden keys.'"<sup>1</sup> Professor Huxley seems to have used "automata" in the second of these senses, as a compact synonym for "machines which appear to be, but are not, self-moving." Professor Morgan, however, thinks that it may be "fairly inferred from what is explicitly or implicitly contained" in Professor Huxley's essay that he used the term as "applicable to any mechanism all the workings of which at any given time are explicable in terms of physical causation." He then objects to this "inferred" definition because, he thinks, it is not in accordance with general usage, not helpful in the study of animal life, and does not preserve the spirit of Descartes's teaching. And he proposes (p. 8) this "more restricted" definition: "Automatic action is that which is performed without the 'immediate and effective intervention of those molecular changes in the cerebral 'cortex which are accompanied by consciousness (such intervention being rendered 'possible by association)."

The root of the matter seems to lie not in the subsidiary inquiry, How should "automata" be defined? but in the much deeper question, Does volition cause and control "voluntary" acts?

<sup>1</sup> *Human Physiology*, third edition, p. 293.

Professor Huxley's opinion that it does not, appears to have been based on his conception of volition as being, like other states of consciousness, and sensations generally, an "immaterial entity," without any attributes in common with the attributes ascribed to matter, impervious to any contact with material particles, and, consequently, unable to be impressed by, or to impress, matter in motion. "The 'sense organ,' he says,<sup>1</sup> 'stands as a firm and impervious barrier through which 'no material particle of the world without can make its way to the world within.' 'With the sensorium, matter and motion come to an end; while phenomena of 'another order, or immaterial states of consciousness, make their appearance. 'How is the relation between the material and the immaterial to be conceived? 'This is the metaphysical problem of problems.'"<sup>2</sup>

These considerations led him to suggest, in 1874, that the difficulty is imagining "that volition, which is a state of consciousness, and, as such, has not the 'slightest community of nature with matter in motion, can act upon the moving 'matter of which the body is composed, as it is assumed to do in voluntary 'acts,' is to be met by the supposition that voluntary acts are as purely mechanical as other actions, 'and are simply accompanied by the state of consciousness called volition . . . volitions do not enter into the chain of causation . . . at all.'"<sup>3</sup>

In 1870 he had expressed the opposite view that a voluntary act primarily requires a distinct consciousness and volition of its details. "Our voluntary acts consist of two parts: firstly, we desire to perform a certain action, and, secondly, 'we somehow set a-going a machinery which does what we desire. But so little 'do we directly influence that machinery, that nine-tenths of us do not even know 'of its existence. . . . We desire the utterance of certain words: we touch the 'spring of the word machine, and they are spoken. Just as Descartes's engineer, 'when he wanted a particular hydraulic machine to play, had only to turn a tap, 'and what he wished was done. . . . If the act which primarily requires a distinct 'consciousness and volition of its details, always needed the same effort, education would be an impossibility.'"<sup>4</sup>

The explanation of this inconsistency is to be found, probably, in the instability of Professor Huxley's intellectual attitude towards the "problem of problems." He seems to have felt under no obligation to form a final opinion about it, and when, sometimes, it seemed necessary to indicate a preference for one or other of the various conflicting solutions, his choice was more or less qualified and provisional. When, in 1870, he held that an act "primarily," i. e., until it has become, by repetition, mechanical, "requires a distinct consciousness and volition of its details, he evidently did not regard volition as an immaterial entity, unable to impress, or be impressed by, moving matter. When, however, he stated, in 1874, that volitions do not enter into the chain of causation of voluntary acts at all, he was under the influence of that dualistic conception. For at that time he thought

<sup>1</sup> *Collected Essays*, VI., p. 299.    <sup>2</sup> *Ibid.*, VI., p. 304.    <sup>3</sup> *Ibid.*, I., 241.    <sup>4</sup> *Ibid.*, I., pp. 187, 188.

that "of two alternatives," the dualistic and materialistic, "one must be true. "Either consciousness is a function of something distinct from the brain, which "we call the soul, and a sensation is the mode in which this soul is affected by the "mode of motion of a part of the brain, or there is no soul, and a sensation is "something generated by the mode of motion of a part of the brain. In the former case the phenomena of the senses are purely spiritual affections, in the latter "they are something manufactured by the mechanism of the body."<sup>1</sup> Of these alternatives he at this time (1874) accepted the dualistic, since he was "utterly incapable of conceiving the existence of matter if there is no mind in which to picture that existence."<sup>2</sup>

In 1879 he remarked about these two speculations, and a third,— "that the sensation is, neither directly nor indirectly, an effect of the mode of motion of the sensorium, but that it has an independent cause,"—that neither of them "can be regarded as anything but a more or less convenient working hypothesis." "But," he added, "if I must choose between them, I take the 'law of parsimony' for my guide, and select the simplest, namely, that the sensation is the direct effect of the mode of motion of the sensorium."<sup>3</sup> "In ultimate analysis, then, it appears that a sensation is the equivalent in terms of consciousness for a mode of motion of the matter of the sensorium."<sup>4</sup> This conclusion, whether materialistic or monistic, is in marked contrast with the strongly expressed dualistic preference in 1874.

In 1886 he repudiated, "as philosophic error, the doctrine of materialism," as he understood it, heartily disbelieving its main tenet "that there is nothing in the universe but matter and force," and holding "that there is a third thing . . . to-wit, consciousness," which he could not see "to be matter or force, or any conceivable modification of either."<sup>5</sup> "If," he at this time wrote, "I were forced to choose between materialism and idealism, I should elect for the latter; and I certainly "would have nothing to do with the effete mythology of spiritualism. But I am "not aware that I am under any compulsion to choose either the one or the other."<sup>6</sup>

In 1894 he seems to have inclined once more to the materialistic solution. For in a note of that year on Descartes's view that animals are non-sentient mechanism, but that the human soul, "which alone feels and thinks, is extra-natural—a something divinely created and added to the anthropoid mechanism," he remarked: "Descartes's denial of sensation to the lower animals is a necessary consequence of "his hypothesis concerning the nature and origin of the soul. He was too logical "a thinker not to be aware that, if he admitted even the most elementary form of "consciousness to be a product or a necessary concomitant of material mechanism, "the assumption of the existence of a thinking substance, apart from matter, "would become superfluous."<sup>7</sup>

But Professor Huxley himself went far beyond the mere making of this admis-

<sup>1</sup> *Ibid.*, I., p. 210.

<sup>2</sup> *Ibid.*, I., p. 245.

<sup>3</sup> *Ibid.*, VI., p. 306.

<sup>4</sup> *Ibid.*, VI., p. 317.

<sup>5</sup> *Ibid.*, IX., pp. 128, 129, 130.

<sup>6</sup> *Ibid.*, IX., p. 133.

<sup>7</sup> *Ibid.*, VI., p. 246.

sion. He definitely pronounced that "there is no doubt that a molecular change in some parts of the cerebral substance, is an indispensable antecedent to every phenomenon of consciousness."<sup>1</sup> That is to say, he accepted as scientifically established a process in the genesis of consciousness which, by his own showing, makes the dualistic "assumption of the existence of a thinking substance apart from matter,"—a thinking "immaterial entity,"—superfluous, and therefore, by "the law of parsimony," inadmissible. The greater includes the less, and the blow thus dealt by him to his own occasional support of the dualistic hypothesis is equally destructive to his conception of volition as unable to impress moving matter because, being an immaterial entity, it has "not the slightest community of nature" with it.

It does not, however, follow, from the unsoundness of the particular grounds on which Professor Huxley based his conclusion, that the conclusion itself is inadmissible. Before it can be safely maintained that he was wrong in holding that volition is only "an emotion indicative of physical changes, not a cause of such changes,"<sup>2</sup> it must be shown that Professor Ziehen is in error when he says that "that which we call will, on strict analysis, is reduced essentially to the tension accompanying the association of ideas<sup>3</sup> and the action"; that "motor ideas," produced by the association of ideas, are themselves able to produce "motor innervation";<sup>4</sup> and that that which finally causes the idea of a movement which is accompanied "by the stronger tone of feeling" to prevail, and suppresses the idea of not performing that movement, or of performing others, "is not a special faculty exercising free will, but only the stronger emotional tone and greater associative affinity of the prevailing idea, combined with the favorable grouping of the latent mental images. Our actions are as strictly necessitated as our thoughts."<sup>5</sup>

In opposition to these opinions Prof. Lloyd Morgan appears to regard volition as a special faculty, exercised by the cerebral cortex, and causing and controlling "voluntary" action. "The cerebral cortex is," he thinks, "the organ of control . . . in its own right." It is "not the instrument of that which controls, but *is*, from the physical point of view, that which controls." (P. 7.) He draws a distinction in kind, where modern physiology appears to recognise only a distinction in degree, between the "co-ordination which is seen in reflex action and in instinctive response," and that "which is seen in voluntary action and renders acquisition possible." (P. 11.) Of this higher type of co-ordination he says: "It exercises a more or less modifying influence on instinctive responses, and thus lifts them above the level of automatism. It involves the direct intervention of those molecular cortical processes which have for their conscious concomitants

<sup>1</sup> *Lessons in Elementary Physiology*. 1885. P. 300.

<sup>2</sup> *Ibid.*, I., 240.

<sup>3</sup> *Introduction to Physiological Psychology*, translated by Drs. Van Liew and Beyer. Second edition, p. 28.

<sup>4</sup> *Ibid.*, p. 275.    <sup>5</sup> *Ibid.*, pp. 296, 297.



"what we term 'choice' based on previous individual experience and dependent 'upon the association of impressions and ideas.'" (P. 11.) "On this conscious 'selection and choice depends . . . the whole of mental as contrasted with merely 'biological evolution. On it, too, depends the distinction between animal automatism, in the restricted sense here advocated, and those higher powers which, 'though founded thereon, constitute a new field of evolutionary progress.'" (P. 18.)

But these lower and higher "types" of "regulative co-ordination," in the view of eminent physiologists of the day, are the workings of lower and higher grades of automatism. "All these facts," says Prof. Michael Foster, (with reference to the spontaneous movements of frogs and pigeons after removal of their cerebral hemispheres), "seem to point to the conclusion that what may be called mechanical 'spontaneity, sometimes spoken of as 'automatism,' differs from the spontaneity of the 'will,' in degree rather than in kind. Looking at the matter from a purely "physiological point of view, . . . the real difference between an automatic act "and a voluntary act is that the chain of physiological events between the act and "its physiological cause, is in the one case short and simple in the other long and "complex."<sup>1</sup> "The difference," says Professor Ferrier, distinguishing between impulsive and deliberate actions, "is not in kind, but only in degree of complexity; "for in the end actions conditioned by the resultant of a complex system of asso- "ciations are of essentially the same character as those conditioned by the simple "stimulus of a present feeling or desire, where no other associations have as yet "been formed capable of modifying it."<sup>2</sup> So, also, Dr. Augustus Waller remarks: "Objectively viewed in the conduct of living beings as it unfolds itself before us "voluntary action appears as a highly disguised and complicated form of reflex ac- "tion, with its causal excitations more or less concealed, more or less deeply buried "in the past history of the individual or of the ancestors."<sup>3</sup> And: "If the doc- "trine of spontaneous volition be accepted (an admission which seems to entail "acceptance of the view that effects may occur without causes, or phenomena with- "out generators) the voluntary act commences at the cortical motor cell. But it "is more logical to admit that previous sensations have been registered, and that "volition is a resultant of past as well as of present sensations."<sup>4</sup>

Analyse "what we term 'choice'" and it is seen to be the inevitable victory of the strongest among conflicting motives. Where such conflict exists, "action," says Professor Ferrier, "is conditioned by the stronger."<sup>5</sup> No one has stated this more plainly, though not altogether accurately, than Prof. Lloyd Morgan himself. "Volition," he says, "is the faculty of the forked way. There are two possibili- "ties, fulfilment in action, or inhibition. I can write or I can cease writing; I can "strike or I can forbear. . . . For volition involves an antagonism of motives, one

<sup>1</sup> *Text-book of Physiology*, fifth edition, p. 1004.

<sup>2</sup> *Functions of the Brain*, second edition, p. 440.

<sup>3</sup> *Human Physiology*, third edition, p. 296. <sup>4</sup> *Ibid.*, p. 297. <sup>5</sup> *Functions of the Brain*, p. 439.

"or more prompting to action, one or more prompting to restraint. The organism "yields to the strongest prompting, acts or refrains from acting according as one "motive or set of motives prevails; in other words, according as the stimuli to "action or the inhibitory stimuli are the more powerful."<sup>1</sup>

But if the organism yields to "the strongest prompting," and action is determined by it, "choice," in the ordinary sense, disappears. Of Professor Morgan's "two possibilities" one only, the following of the strongest impulse, can exist. The cerebral cortex cannot be the organ of control "in its own right," but must be merely "the instrument of that which controls." It, equally with "the lower brain centres which are concerned with automatism in the more restricted sense," is seen to be itself controlled, since "the actions which we term voluntary," and are "the effects of those molecular changes in the cortex which are accompanied by consciousness," are conditioned and determined, not by independent working of the cortex, but by the strongest of the various stimuli which cause molecular changes in its substance.

Either, then, it seems, Prof. Lloyd Morgan must give up his present belief that "the organism yields to the strongest prompting" or his conclusion that actions, whether of animals or men, cease to be automatic, that is, mechanical and "determined," when they are the result of "conscious selection and choice." So long as he retains his belief in the victory of "the strongest prompting," it seems impossible to distinguish logically, between his determinism and that of Professor Huxley and the Editor. He has already expressed a view<sup>2</sup> similar to theirs,<sup>3</sup> as to the way by which a reconciliation—(hollow, as I venture to think, and unreal)—may be brought about between determinism and "freedom."

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<sup>1</sup> *Animal Life and Intelligence*, p. 459.

<sup>2</sup> *Introduction to Comparative Psychology*, p. 240.

<sup>3</sup> *Collected Essays*, I., pp. 240, 241; VI., p. 220; IX., p. 141. *The Monist*, III., p. 87, "The Idea of Necessity."

## BOOK REVIEWS.

**PISTIS SOPHIA.** A Gnostic Gospel (with Extracts from the Books of the Saviour appended), originally translated from Greek into Coptic and now for the first time Englished from *Schwartz's* Latin version of the only known Coptic MS. and checked by *Amélineau's* French version with an introduction by *G. R. S. Mead*, B. A., M. R. A. S. London: The Theosophical Publishing Society, 26 Charing Cross, S. W.

*Pistis Sophia* is the title of an interesting MS. in the possession of the British Museum which belongs to the large class of gnostic literature that characterises the religious aspirations of the beginning of the Christian era. The words "*Pistis Sophia*" are apparently incorrect, but the most probable form, *HIETH SOPIA*, viz., the Faithful Wisdom, suggested by Dulaurier and Renan, has not as yet been accepted. The best translation was made into Latin from the Coptic original by M. G. Schwartz and edited after his premature death by his friend and colleague, J. H. Petermann. Mr. Mead has undertaken the meritorious task of rendering Schwartz's translation into English, which he has collated with Amélineau's French version and prefaced with an appropriate introduction.

The probable history of the *Pistis Sophia*, according to Mr. Mead, was as follows: "I am convinced that the original was no other than the famous Apocalypse of Sophia, composed by Valentinus, the most learned doctor of the Gnosis, who lived for thirty years in Egypt in the latter half of the second century, and was also a master of the Greek language, in which he wrote his treatises. . . . The original Greek treatise of the *Pistis Sophia* was compiled by Valentinus in the latter half of the second century, perhaps in Alexandria. By 'compiled' I mean that the Apocalypse of Sophia, or whatever its title may have been, was not invented from first to last by Valentinus. The traditional framework of the narrative, the selection of texts and passages from other scriptures, Hebrew, Christian, Egyptian, Chaldean, Æthiopic, etc., or whatever they may have been, and the adaptation of nomenclature, were his share of the task; but it is evident that in many places he was translating or paraphrasing himself, and that he had great difficulty in turning some of the Oriental terms into Greek." A copy of Val-

entinus's book, Mr. Mead suggests, was carried up the Nile, where it was translated into the Coptic vernacular of the country.

The MS. of the Pistis Sophia is in parts incomplete, in other parts full of repetitions. There are also a number of leaves written by the same copyist which contain long quotations from the *Books of the Saviour*. Therefore Mr. Mead suggests "that the translator must have either translated, or possessed a translation of, The "Books of the Saviour and The Books of Ieon. These were also most probably "a compilation of Valentinus, or perhaps The Books of the Saviour were a compilation of Valentinus from the older Books of Ieon, which may have belonged "to the Æthiopic Enochian literature, for they are stated in the Pistis Sophia "(pages 246 and 354) to have been written down in Paradise by Enoch, and pre- "served from the Flood."

It is noteworthy that the author of Pistis Sophia does not seem to be familiar with the doctrine of Christ's ascension for he states that when Jesus had risen from the dead he passed eleven years with his disciples and gave them instruction about the various mysteries of the universe and its emanations, revealing to them what occultists of to-day would call "an esoteric Christianity." They sat on the Mount of Olives on the day of the full moon and a stream of immeasurable light fell on Jesus. He rose into the air, was received by the archangels in heaven, and descended again, shining exceedingly. He then explains to his disciples that he had thrown powers into the wombs of their mothers which are now incarnated in them and that John the Baptist was Elias in one of his former births. Jesus tells how he put on his vesture and went through the spheres and æons, converting them, and overcoming Adamus the tyrant and all the tyrants who were adversaries of the light. And Melchisedec appears as the receiver and the purifier of light, who carries the light into the treasure of light. In the thirteenth æon Jesus withdrew the veil and found Pistis Sophia, one of the twenty-four emanations, who, when she saw the mystery of her name and all the glory of that mystery written on his vesture, began to sing a song. Jesus explains that Pistis Sophia had become guilty of a desire to gaze into the height above her, which made her forget to attend to the mystery of her region, and the twelve æons below her hated her and decoyed her to look down. "Arrogant," the great triple power, joined the æons and induced Sophia to gaze into the lower parts that she might there see his light-power, which has the face of a lion. These adversaries of Sophia succeeded in expelling her light, and when she fell down into the darkness of chaos she began to understand that she had sinned, and uttered thirteen repentances, which are interpreted and commented upon by various disciples. Then Jesus produced out of himself a light-power and sent it into the chaos to Pistis Sophia to bring her up again from the depths into which she had fallen. She sings: "I will sing a song "unto thee, O light, for I have desired to come unto thee; I will sing thee a song, "O light, for thou art my saviour; leave me not in chaos. Save me, light of the



"height, for unto thee have I sung a song." Then, apparently identifying Jesus with the light, she continues: "Thou hast sent me thy light from thyself, and thou hast saved me. Thou hast brought me to the higher regions of chaos. . . . The emanations of Arrogant have designed to take away my light, but have not been able to take it; for thy light-power is with me, and they have taken counsel together without thy commandment, O light. For this cause have they not been able to take away my light, because I have trusted in the light. I shall not be afraid; the light is my saviour, and I will not fear."

Jesus then explains that the redemption of Pistis Sophia from the darkness of chaos is the consummation of the first mystery. The book closes with various interpretations of David's prophecy that "Mercy and Truth are met together; righteousness and peace have kissed each other."

The second book tells of the help afforded to Pistis Sophia by archangels and a light-stream; but she is again distressed by Arrogant, who calls on all the demoniacal powers to drag her down again. At last Pistis Sophia is rescued and transfigured. She is "tabernacled in the midst of the light, a mighty light being on her left and on her right, and on all sides, forming a crown on her head." New songs of praise and explanations of the mysteries follow, the details of which might prove tiresome to the readers of the present generation.

The purpose of the mysteries is explained by Jesus in these words: "'I came 'not to call the righteous.' Now, therefore, I have brought the mysteries that the 'sins of all men may be remitted, and they be brought into the kingdom of 'light."

When the disciples lose courage to understand the mystery of the ineffable Jesus comforts them, saying: "Whosoever shall renounce the whole world and all therein, and shall submit himself to the divinity, to him that mystery [of the ineffable] shall be far more easy than all the mysteries of the kingdom of light; it is far simpler to understand than all the rest, and it is far clearer than them all. He who shall arrive at a knowledge of that mystery, hath renounced the whole of this world and all its cares. For this cause have I said to you aforetime, 'Come unto me all ye that are oppressed with cares and labor under their weight, and I will give you rest, for my burden is light and my yoke easy.' Now, therefore, he who shall receive that mystery, hath renounced the whole world, and all the material cares that are therein."

"Wherefore, my disciples, grieve not, thinking that ye will never understand that mystery. Amen, I say unto you, that mystery is far simpler to understand than all mysteries; and amen, I say unto you, that mystery is yours and also his whosoever shall renounce the whole world and all the matter that is therein."

"Now, therefore, hearken, O my disciples, my friends and my brethren, that I may impel you to the understanding of that mystery of the ineffable. These things I say unto you, because I have already instructed you in every gnosis

"in the emanation of the pleroma; for the emanation of the pleroma is its gnosis.

"... All those men who shall have received the mystery in that ineffable, shall be fellow-kings with me, they shall sit on my right hand and on my left in my kingdom.

"Amen, I say unto you, those men are myself, and I am these men."

The psychology of the Pistis Sophia is peculiarly interesting. The soul is said to be a compound fashioned by the five great rulers in due proportion from the sweat, the tears, and the breath of the mouth of the rulers; old souls can be re-fashioned by the five great rulers, but they let them first drink the draught of oblivion, which is a mixture from the seed of iniquity. This draught of oblivion produces the counterfeit of the spirit (which may be the old Egyptian idea of the double), which is distinct from the soul as an envelope or vesture that, even without the soul, may continue to lead a kind of ghost existence. After death "the counterfeit of the spirit bringeth that soul unto the virgin of light, and the virgin of light, the judge, handeth over that soul to one of her receivers, and her receiver casteth it into the spheres of the aeons, and it is not set free from transmigrations into bodies until it giveth signs of being in its last cycle."

"... The counterfeit of the spirit beareth witness to every sin which the soul hath committed, ... sealeth every sin that it may be stamped on the soul so that all the rulers of the torments of sinners may know that it is the soul of a sinner, and may be informed of the number of sins which it hath committed, by the number of seals which the counterfeit of the spirit hath stamped upon it, so that they may chastise it according to the number of sins which it hath committed. This is the fashion in which they treat the soul of the sinner."

Isou, the overseer of the light, is set as a watch over the dragon, into whose mouth all the blasphemers, heretics, and irredeemable sinners are cast (p. 323), and their torments will be more painful than all former chastisement of the judgments; they will be imprisoned in relentless ice and scorching fire, and they shall perish and shall become non-existent for eternity (p. 324). But the soul that has exhausted the cycles of transmigration, shall be brought unto the seven virgins of light who preside over baptism, that they may baptise that soul, and seal it with the sign of the kingdom of that ineffable, and bring it into the orders of the light; ... they will become flames of light, or streams of light, that they may pass through all the regions until they come into the region of the inheritance."

The quotations from the Books of the Saviour are written in the same spirit as Pistis Sophia, treating of the doctrine of punishment of blasphemers, heretics, and the wicked; and the salvation of those that have received the mysteries. Jesus, the great initiator, preaches this to his disciples in Amenti (which is the Egyptian Nether World), and the disciples answer: "Woe, woe unto sinners, on whom the indifference and forgetfulness of the rulers lie heavily, until they pass out of the body to suffer these torments! Have mercy upon us, have mercy upon us, son

"of holiness, that we may be saved from these torments and these judgments which are prepared for sinners, for we also have sinned, O master, our light."

The apocryphal books, especially the expositions of the various gnostic schools, are very important for the sake of comprehending that great religious movement that produced as a final result the Christian Church. But for that reason it is not necessary (as Mr. Mead believes) that the treatment of "Gnosticism in a really comprehensible manner requires not only a writer who at least believes in the possibilities of magic, but is also a mystic himself, or at least one who is in sympathy with mysticism."

**DIE IRRTHUMSLOSIGKEIT JESU CHRISTI UND DER CHRISTLICHE GLAUBE.** Ein Nachwort zu der Schrift: "Konnte Jesus irren?" Von *Dr. Paul Schwartzkopff*. Giessen: J. Ricker'sche Buchhandlung, 1897. Price, M. 2.00.

Professor Schwartzkopff's little pamphlet *Konnte Jesus irren?* has hit the central problem of modern theology, and we do not hesitate to say, in spite of the protest of Zöckler and of other prominent divines, that the solution which Schwartzkopff offers is the only one on which the traditional orthodoxy can take its stand. In reply to Professor Zöckler, Schwartzkopff says: "As far as I myself am concerned in this matter, I can assure Dr. Zöckler that the bitterest anxiety of heart alone has compelled me after years of careful investigation to recognise this error of Jesus" (viz., the prophecy concerning the second advent).

Schwartzkopff emphasises the difference of sinlessness and freedom from error; he has not lost confidence in the sinlessness of Jesus, but sinlessness does not imply omniscience. Ignorance is not a sin, and ignorance naturally and necessarily leads to error. Infallibility concerning all moral truths that have reference to God's plan of salvation does not include a general infallibility in all respects; the former is evidence of the divinity of Jesus and would prove that he was the Christ, but a general infallibility would render the humanity of Jesus impossible and thus lead to docetism.

Professor Schwartzkopff has been attacked by several prominent theologians from the orthodox ranks, but their attacks only prove the importance of the problem and the necessity of solving it. There is no use of shutting one's eyes to it after the ostrich fashion. Schwartzkopff himself comes from the orthodox ranks and has, so far as it is possible for a scholar and thinker, preserved the traditions of the old dogmatism; but he found his faith seriously jeopardised by those statements in the New Testament which contain unequivocal errors, as, for instance, the idea of Jesus, that his second advent would take place during his own generation.

Schwartzkopff characterises his solution of the problem in the following words of the conclusion:

"For those who see in Jesus a mere man, his fallibility is unquestionable and a matter of course. But they who are convinced that in the sinless Son of God

"the personal God himself is bodily revealed in his profoundest essence, will, when confronted with some of the accredited utterances of Jesus, certainly be led to inquire whether his perfect community with God could have absolutely protected him from error. If, as I have shown, the possibility, nay, the necessity of certain errors is deducible from the very character and origin of human perception and thought as such, then he who would deny this to Jesus would practically make a docetic denial of his true humanity. But the person who does not go thus far dare not accuse me of annulling his true divinity when I hold that the fallibility of Jesus in matters not pertaining to salvation is possible and demonstrable.

"If my proof stands, then the widespread opinion that error can only proceed from sin is fully refuted by the psychological facts, as is also the conclusion therefrom that Jesus must have been absolutely errorless and absolutely sinless. The fact remains that the saying, 'To err is human,' is also applicable to Jesus, not because he was *merely* a man, but because he was *truly* a man.

"But if Jesus really did err in certain things, theology cannot escape from the obligation, not to *give up*—I am far from saying that—but *so to conceive* his divinity that we can squarely reckon with established facts and that no direct contradiction shall obtain concerning them. This forces us above all to a modification of the old ecclesiastical conception of the Dual Nature and of Anselm's doctrine of reconciliation, which in their primitive meaning can scarcely be upheld to-day by any theologian." KPS.

PHILOSOPHY OF THEISM. Being the Gifford Lectures, Delivered Before the University of Edinburgh in 1894-95. By *Alexander Campbell Fraser, LL. D.* Edinburgh and London: William Blackwood and Sons. Two series. Vol. I. 1896. Pages, 303. Vol. II. 1896. Pages, xiii, 288.

It is a fine series of volumes that have sprung from the foundation of the late Lord Gifford at Glasgow. And not the least is the last work—the present two series of lectures—by the venerable Emeritus Professor of Logic and Metaphysics in the University of Edinburgh, Alexander Campbell Fraser, a man of the maturest philosophical culture, who has earned the gratitude of the thinking world by his splendid monumental editions of Locke and Berkeley. At the close of his life he is called upon to deliver his judgment, born of a ripe thought and feeling, upon the greatest problem with which the human mind has occupied itself. He says: "My first words must give expression to the emotion which I feel on finding myself once more admitted to speak officially within the walls of this ancient university, with which, as student, graduate, and professor, I have been connected for sixty years. For it is sixty years in this November since I first cast eyes of wonder on the academic walls which now carry so many memories in my mind, and which to-day are associated with an extraordinary responsibility. In the evening of life,



"in reluctant response to the unexpected invitation of the patrons of the Gifford Trust, I find myself, in the presence of my countrymen, called to say honestly "the best that may be in me concerning the supreme problem of human life, our "relation to which at last determines the answers to all questions which can "engage the mind of man. No words that I can find are sufficient to represent my "sense of the honor thus conferred, or the responsibility thus imposed, upon one "who believed that he had bid a final farewell to appearances in public of this "sort, in order to wind up his account with this mysterious life of sense."

How liberal were the intentions of Lord Gifford may be learned from the following words of his bequest: "The lecturers appointed shall . . . . . be subjected to no test of any kind, and shall not be required to take an oath, or to make "any promise of any kind; they may be of any denomination whatever, or of no "denomination at all (and many earnest and highminded men prefer to belong to "no ecclesiastical denomination); they may be of any religion or way of thinking, "or, as it is sometimes said, they may be of no religion; or they may be called "sceptics, agnostics, or free-thinkers, . . . it being desirable that the subject be "promoted and illustrated by different minds."

On the other hand we have something approaching a definition in the following characterisation by Lord Gifford of the subject of the lectures: "God, the Infinite, the All, the First and Only Cause, the One and the Sole Substance, the Sole Being, the Sole Reality, and the Sole Existence."

And the definition is significant, for it is characteristic of theological thought not to examine facts and to lead them to their own interpretation, but to proceed anteriorly from abstract notions and to mould the facts to the notions. Why a theological inquirer should start with the notions of Infinite, First Cause, Sole Being, Perfect Moral Person, Sole Reality, etc., is unintelligible to the scientific inquirer who always seeks to reach his results before he postulates them. Professor Fraser after examining in his first volume the conceptions of Universal Materialism, Pan-egoism, Pantheism, and Agnosticism, and finding them unsatisfactory, resorts to man's personality as the principle of interpretation. He stands before the dilemma: *Homo mensura*, or *Nulla mensura*. "Does God, or the final principle, mean "only the ultimately inexplicable natural order; or does God mean ever-active "moral reason and purpose, at the root of an always divinely sustained physical "order, in which God is Supreme?" And again: "The deepest and truest thought "man can have about the outside world, is that in which the natural universe is "conceived as the immediate manifestation of the divine or infinite Person, in "moral relation to imperfect persons, who, in and through their experience of what "is, are undergoing intellectual and spiritual education in really divine surroundings." And further: "*Man at his highest*, acting freely under moral obligation, with its implied intellectual and moral postulates, is suggested as a more "fitting key to the ultimate interpretation of things than man only as an animal "organism, abstracted from the moral experience that is often unconscious in the

"human individual, but is realised fully in the Ideal Man, and can be disclaimed "by imperfect men only by disclaiming human responsibility."

In this way the author reaches his definition of God, and proves his existence as we prove the existence of other minds than ours. His standpoint is essentially that of faith as an escape from the horrible implications of mechanism, his demonstrative principle *postulates* "morally perfect Power as at the root of the physical, æsthetical, and spiritual experience of mankind, although with a background of inevitable mystery." He has an explanation of miracles, at least of miracles as rationalised, and he finds in "optimist trust" the highest human philosophy as opposed to the grim and awful sufferings of the world, which so sorely shake the theistic faith. This last is done in the second volume.

Notable are the candour and fair tolerant tone of the author in his treatment of the opinions of others, to which he gives the fullest weight in his power. The examination of the theistic and atheistic testimony of the world is in fact the finest feature of the work.

GREEK FOLK POESY. Annotated Translations from the Whole Cycle of Romæic Folk-Verse and Folk-Prose. By Lucy M. J. Garnett. Edited with Essays on the Science of Folklore, Greek Folk-speech, and the Survival of Paganism, by J. S. Stuart-Glennie, M. A. Vol. I. Folk-Verses. Pages, 477+lvii. Vol. II. Folk-Prose. Pages, 541+ix. London: David Nutt. 1896.

These two handsome volumes are the work of two scholars. The translations of the modern Greek Folk-Verses and Folk-Prose, constituting the bulk of the work, and which, owing to the multitude of Grecised foreign words, the poverty of dialectical grammatical forms, and the varied contractions and elisions that occur in the language, were very difficult, has been made by Miss Lucy M. J. Garnett who possesses exceptional knowledge in this field of linguistics, while all the learned paraphernalia, the annotations, the critical and scientific introductions have been supplied by that well known scholar Mr. J. S. Stuart-Glennie. The work, which places a vast amount of hitherto inaccessible material within the reach of English Folklorists, is thus accompanied by all the erudite equipment which is so necessary to prevent such researches from running aside and from culminating in hedonistic dilettantism and in the collection of vast heaps of linguistic rubbish born of a sheer delight in the labor of accumulation. Mr. Glennie has supplied (1) a General Preface, in which he traces the history of folklore researches and seeks to point out the way in which they may be turned to practical account in the furtherment of a philosophical knowledge of the world; (2) a Preface proper, in which he gives the history of the special Greek Folk Poesy which he and Miss Garnett have collected in this work; (3) an exhaustive Introduction on the Science of Folklore, where his learning and insight show to special advantage; and (4) a conclusion on the Survival of Paganism, in which the author proposes a solution of the questions of the origin of supernatural gods, and of the origin of natural causation. It is Mr.

Glennie's purpose to determine the character of the "Primitive Conception" of nature so called, and hence of the truth there may be in Comte's theory of fetishism, Tyler's theory of animism, and Spencer's theory of spiritism. This is a problem, he contends, the solution of which is a *sine qua non* for a scientific theory of the origin of the history of religion. In Folk Poesies, that conception he believes may be best ascertained if we make ourselves thoroughly master of the folk dialects in which they are expressed, and if, above all, the Folk Poesy specially chosen for study has been little if at all affected by the conceptions of the great Culture-Religions. Both on account of the possibility of mastering its language and of the little influence on it of Christianity, the study of Greek Folk Poesy has appeared to him to be specially important for the rectification of two grave defects in the philosophy of history—viz., "the lack, as yet, of a verified theory of the Conditions of the Origin of progressive Social Organisation, or Civilisation; and, further, the lack of a verified theory of the Conditions of the Origin of progressive Philosophic Thought, or Ratiocination." The solution of the problem set by the first of these defects must primarily be drawn from the results of historical, archæological, and ethnological research; but the solution of the problem set by the second of these defects depends mainly on the results of folklore research. With a view, therefore, chiefly to the solution of this problem of thought-origins and hence of thought-development, the representative pieces of Greek Folk-Poesy which make up this work have been translated and arranged in such classes as to make them available for the purposes of scientific generalisation. These classes are three in number, viz., mythological idylls and tales, social songs and stories, historical ballads and legends, the first of which is divided into three sections: Zoönist, Magical, and Supernalist; the second into Antenuptial, Family, and Communal; and the third into Byzantine, Ottoman, and Hellenic. From a private communication we learn that Mr. Stuart-Glennie would now prefer to substitute the term *Panzoism* for *Zoönism*. Mr. Stuart-Glennie's contribution to *Criticisms and Discussions* in the present *Monist* affords an opportune occasion for our readers to acquaint themselves with his views on the origin of civilisation, which form the complement to the present work. *μικρ*

CONTRIBUTIONS TO THE SCIENCE OF MYTHOLOGY. By the Right Honorable Prof F. Max Müller, K. M., Member of the French Institute. Two Volumes, Longmans, Green & Co.: London, New York, and Bombay. 1897. Total number of pages, 864. Price, \$8.00.

To his imposing series of works on *The Science of Language*, *The Science of Religion*, and *The Science of Thought*, Prof. Max Müller now adds two more stately volumes on *The Science of Mythology*. He thus partially fills the gap in the work of his life as he had planned it many years ago, namely, "an exposition, however imperfect, of the four Sciences of Language, Mythology, Religion, and Thought, following each other in natural succession, and comprehending the whole sphere of activity of the human mind from the earliest period within the reach of

our knowledge to the present day." He had always cherished the profoundest regret at not having ever been able to do for mythology what he had been allowed to do for the other three sciences, namely, "to collect in a comprehensive form what I had written and what I still wished to say." Having been told, however, that as a defender of mythological orthodoxy he stood "quite alone, a poor Athanasius *contra mundum*," and that all his followers and supporters had deserted him, that his victorious adversaries were legion, etc., he felt it as a personal challenge which it behooved him as a representative of science and in justice to the cause he championed, to transfix. He has poised his lance, therefore, against that motley army of popular writers and dilettantes who without scholarship or the spirit of research have overrun the domain of Comparative Mythology and Folklore, and also against that increasing army of real and genuine scientists who have forsaken the older implements of Mythology and have been winning new conquests by the weapons of Ethnology. He quotes on this head the judgment of that Nestor of folklorists and ethnologists, our own Horatio Hale, who gives as the reason of the recent neglect of linguistic studies the following opinion:

"The patient toil," he writes, "and protracted mental exertion required to penetrate into the mysteries of a strange language and to acquire a knowledge profound enough to afford the means of determining the intellectual endowments of the people who speak it, are such as very few men of science have been willing to undergo."

As to the impersonal character of science and as to the irrelevance of his having been flouted as "the only champion left to defend Mythology," Prof. Max Müller, conscious of the personal nature of his plea, forestalls the possible suspicion of egotism in the following beautiful words:

"I am pleading *pro domo*, but not for myself. Scholars come and go and are "forgotten, but the road which they have opened remains, other scholars follow "in their footsteps, and though some of them retrace their steps, on the whole "there is progress. This conviction is our best reward, and gives us that real joy "in our work which merely personal motives can never supply."

Then follows a succession of kindly thrusts at his most persistent and presumptuous critics, particularly Mr. Andrew Lang, who, despite his lacking the mysterious qualifications which admit men to the magic circle of specialists, is nevertheless a conspicuous and ubiquitous figure in the book, and the object of much flattering persiflage. Following we have a catalogue of the great men who defended in the olden times and who still defend the cause which the author represents, and whose overtowering magnitude casts his pygmy opponents utterly in the shade. Interspersed throughout the book in profusion is that piquant personal gossip for which Professor Max Müller is so justly famed, and which, if administered by any less skilful hand, would go far towards disproving the author's view that "true science has nothing to do with personality."

The two bulky volumes which compose the work are divided into six chapters,



viz.: Chapter I., which is a "Retrospect" or survey of the beginnings of Mythology, its controversies, etc.; Chapter II., "On the Problems and Methods of the Science of Mythology"; Chapter III., on "The Analogical School of the Science of Mythology"; Chapter IV., "The Psychological School of Comparative Mythology"; Chapter V., on "Phonetics"; and Chapter VI., which takes up the entire second volume, on "Vedic Mythology." The chapters are well and thoughtfully arranged into short subdivisions, having headings of bold-faced type, features which, with the excellent index, dispense with a systematic reading of the work and render it easy of consultation. The work is, self-confessedly, not a systematic treatise but a collection of fragments and personal opinions on the thousand and one varied problems and controversies which the divergencies between the different schools of comparative mythology have given rise to.

Comparative mythology is, according to Max Müller, divided into three schools: (1) the etymological or genealogical school; (2) the analogical; and (3) the psychological or ethno-psychological. The first school tries to prove the common origin of myths among cognate races before their separation by showing in their language the presence of certain proper names of gods or heroes which, if tested etymologically, show substantially the same original meaning. For example, *Zeús πατήρ*, "Jupiter," as compared with the Sanskrit *Dyaus-ch-pitar*, i. e., "the bright sky as father." The second school makes use of the similarities in the characters and fates of the gods and heroes, even though their names be different, for proving their identity. The third school compares the myths of people genealogically and linguistically unconnected and chiefly of tribes on the lower and lowest stages of civilised life, finding in their coincidences the result of psychological tendencies ingrained in human nature and consequently common to all mankind. These methods are not contradictory according to our author, but have all their justification. He has chiefly worked within the "narrow limits of the genealogical or linguistic school," which, as compared with the newer ethnological school, is latterly supposed to have fallen into disrepute from its extravagances. This charge Prof. Max Müller resents, claiming that the method forged by his predecessors and confrères is as legitimate in its field as that which has so successfully been used by his opponents. "Each in its own sphere has done and may continue to do some real good, but they should not be mixed up together." Of his own school he claims he has never shared the prejudices and has ever been willing to take advantage of the ways of investigation of the others. His plea has a plausible and prepossessing form and is certainly fascinating reading alive with light and suggestiveness on all the points investigated. It will serve the cultured reader who is occupied with mythology, for occasional reading; and whatever its actual value from the point of view of the modern specialist, certainly coming from a man of Max Müller's learning and power, even to the initiated it will not be without powerful influence. Its gentle, aristocratic tone is fitly crowned by a dedication to the King of Sweden.

T. J. MCCORMACK.

HABIT AND INSTINCT. By C. Lloyd Morgan, F. G. S. London and New York : Edward Arnold. 1896. Pages, 351.

The contents of the present work by Prof. C. Lloyd Morgan are already familiar to many Americans, as they formed the subject of the Lowell course of Lectures at Boston and of further lectures in New York, Chicago and other university centres during the early part of 1896. Some of the matter of the book has appeared in the *Fortnightly Review*, *Nature*, *Natural Science*, *The Monist*, *The Humanitarian*, *Science*, and reprints of many of the observations in *The Open Court*. As now collected, this matter forms a handsome, well printed volume having a beautifully engraved frontispiece of a group of young birds, and is divided into fifteen chapters. The first chapter treats of some Preliminary Definitions and Illustrations with special reference to the distinction between instincts and habits, as being in the one case congenital and in the other acquired. The second chapter treats of Some Habits and Instincts of Young Birds, the third of Locomotion in Young Birds, the fourth continues the Observations on Young Birds, the fifth deals with Young Mammals, the sixth with the important subject of The Relation of Consciousness to Instinctive Behavior, which lies at the basis of psychology; the seventh discusses Intelligence and the Acquisition of Habits, the eighth Imitation; the ninth, tenth, and eleventh deal respectively with The Emotions in their Relation to Instinct, Some Habits and Instincts of the Pairing Season, and Nest-Building, Incubation and Migration. The remaining four chapters, which in their general philosophic bearing are perhaps most important, are entitled, respectively, "The Relation of Organic to Mental Evolution," "Are Acquired Habits Inherited?" "Modification and Variation," and "Heredity in Man." We may refer briefly to some of their conclusions. The position of Prof. Lloyd Morgan with regard to the inheritance of acquired habits, is well known,—being a partial compromise between the Weismannian and Lamarckian views, although leaning decidedly towards the former. He says: "If pressed to summarise my own opinion on this vexed question, I should say, first, that there is but little satisfactory and convincing evidence in favor of transmission, but that variation does seem in some cases to have followed the lines of adaptive modification, so as to suggest some sort of connexion between them; secondly, that there are many instincts, relatively definite and stable, which may fairly be regarded as directly due to natural selection, though here again, if we could accept the view that adaptive modification marked out the lines in which congenital variation should run, our conception of the process of their evolution would be so far simplified; thirdly, that there are some peculiar traits, also seemingly definite and stable, which can only be attributed to the indirect effects of natural selection on the supposition that they form part of the congenital nexus, and that they have no intrinsic tendency to variation in any particular direction; and fourthly, that, in the present state of our knowledge, it is best to accept provisionally the view that they are thus indirectly due to natural selection."

Nevertheless he feels that although the evidence for the transmission of acquired habits is insufficient yet some connexion between variation and modification is suggested by the facts, understanding by "variations" departures of congenital origin and by "modifications" departures which are individually acquired. He has accordingly approached this subject from a new standpoint and has sketched in outline, Chapter 14, "an hypothesis according to which acquired modification may pave the way for congenital variation without any direct transmission as such."

Prof. Lloyd Morgan does not accept Weismann's doctrine of germinal selection as recently expounded in *The Monist* though he regards it as a suggestive hypothesis; it does not follow for him that because in some cases use and disuse can have played no part therefore in no other cases has use-inheritance prevailed. He believes he can accept the facts adduced by the transmissionist and at the same time interpret them on selectionist principles. The gist of his idea is that "persistent modification through many generations, though not transmitted to the germ, nevertheless affords the opportunity for germinal variation of like nature." The modification is not inherited but from having taken place generation after generation variations in the same direction as the modifications are no longer repressed and are allowed full scope. There will arise a congenital predisposition to the modifications in question. Given the plasticity of organisms, given persistent modifications, ever increasing in adaptiveness, germinal variation will follow. "The modification *as such* is not inherited, but is the condition under which congenital variations are favored and given time to get hold on the organism, and are thus enabled by degrees to reach the fully adaptive level."

The conclusions regarding heredity in man are important and touch the quick of a much vexed question. They approach again to the Weismannian view as will be seen from his own words: "There is little or no evidence of individually acquired habits in man becoming instinctive through heredity. Natural selection becomes more and more subordinate in the social evolution of civilised mankind; and it would seem probable that with this waning of the influence of natural selection there has been a diminution also of human faculty. Hence there is little or no evidence of the hereditary transmission of increments of faculty due to continued and persistent use. A discussion of heredity in man thus confirms the inference drawn from the study of habit and instinct in some of the lower animals." And further: "If those who endeavor to apply biological conceptions to social phenomena would only remember that the essence of natural selection is the exclusion of the weakly, the inefficient, and the anywise unfit, from transmitting their inefficiency, and the consequent hereditary increment of efficiency in those who remain to contribute as parents to the continuation of the race, much confusion of thought would be avoided. In this sense I contend that natural selection is not an important factor in human progress among the civilised races of to-day." Prof. Lloyd Morgan does not believe that the level of human intelligence is rising but only the level of the intellectual and social environment—the

stored up opportunities of intellectual and æsthetic culture. Selection without elimination involves no racial progress. He then puts this problem: "It would seem, in fine, that if mental evolution in man be manifested rather in the progressive advance of human achievement than in progressive increment of human faculty; if the developmental process have been transferred from the individuals to their environment; if it be rather the intellectual and moral edifice that is undergoing evolution, than the human builders that contribute in each generation a few more stones to take a permanent place in its fabric; if there be thus no conclusive evidence that faculty is improving, but rather the opposite; if all this be so, then it would seem that the ground is cut way from under the feet of those who regard mental evolution in man as due to inherited increments of individually acquired faculty. Nay, more; if the average level be not rising, some explanation must be demanded from transmissionists of this fact. For surely if there be transmission of individually acquired increment, the average level of faculty ought to be steadily rising."

The book, both for study and reading, is marked by charm of style, attractiveness of presentation, and soundness of philosophical view. There is a wealth of observation on animal life gathered in it, concisely and entertainingly told. All will draw intellectual edification from its perusal.

T. J. McC.

VORLESUNGEN ÜBER THEORETISCHE PHYSIK. Von *H. von Helmholtz*. Band V  
Electromagnetische Theorie des Lichtes. Herausgegeben von Arthur König  
und Carl Runge. Hamburg. 1897. Pp. 370. Price, 14 Marks.

Helmholtz in his triple rôle of physiologist, physicist, and mathematician is perhaps sometimes forgotten as Helmholtz the educator. It may indeed be doubted whether any one American, dead or living, has ever furnished from the ranks of his own students so many investigators and instructors in physics for American institutions as has Helmholtz.

For a full quarter of a century, the royal university of Berlin was the attracting centre for Americans in search of opportunities in physics, mathematical or experimental. It was there, under the kindly eye and word of the master, that life-long inspiration came to many a student. The volume under review, therefore, is not without a peculiar personal interest for many of its English-speaking readers.

Forming, as it does, the fifth in a series of six volumes, it is nevertheless the first to appear, the lectures having been recorded in stenographic notes by a student during the last semester of their delivery. While the *Electromagnetic Theory of Light* stands as the title of the lectures, they cover really the whole ground of modern optics, both geometrical and physical. Parts III., IV., and V., treating of spherical waves, diffraction and geometrical optics, respectively, would stand intact on any wave-theory of light, being questions of kinematics, not of kinetics. It is when the real nature of luminous disturbances is considered, in Parts I., II., and



VI., that the electromagnetic theory is employed, and employed with marvellous lucidity.

It will be remembered that Maxwell, in 1865, sent to the Royal Society his prediction that light-waves would be found to be electric waves, travelling in the ether of transparent substances, and that the speed of light, in any given medium, would be found to depend upon the electric and magnetic constants of that medium. But it was not until the autumn of 1888 that Hertz, the favorite pupil of Helmholtz, succeeded in actually producing these electric waves, in measuring their speed, in reflecting, refracting, and polarising them; succeeded, in short, in proving *experimentally* the identity of light-waves and electric-waves. This investigation of Hertz was undertaken in response to a prize question set by Helmholtz for the Berlin Academy. In a very true sense, therefore, Helmholtz is one of the founders of the electromagnetic theory of light: and the volume before us is one in which a creator describes his own work; especially is this the case in the chapters on geometrical optics and dispersion.

To one of philosophic bent, no more instructive chapter in the history of physical science is to be found than that in which a great field of learning—light—is swallowed up, as a special case, in another great field—electricity. It forms a long stride toward a unitary view of nature, toward the goal of modern physics.

Each of the various parts of the subject which Helmholtz here handles have been discussed in various treatises, English and German, and, indeed, the whole subject is touched upon in certain compendiums of physics. But nowhere has there ever appeared a treatment at once so thorough, so elegant, and so exceedingly clear, as that under review. The mathematics which appear are not introduced as exercises in analysis, rather as tools in a master's hand. Each mathematical result receives a distinct physical interpretation. The word "theory," from its first appearance on the title-page to the end of the book, is employed only in its best sense—its original sense—to indicate not the hazy guess of a vivid imagination, but an attempt at a comprehensive survey and a concise description of facts.

A brief summary of the contents of the volume is the following. Our notions concerning the nature of light have been arrived at through at least four steps. First, the emission-theory of Empedocles in which the eye, as well as the object seen, emits the light. Second, the corpuscular theory of Newton, in which the self-luminous body is the sole source of emission. Third, the elastic-solid wave-theory of Fresnel. Fourth, the electromagnetic wave-theory of Maxwell.

It is to a complete description of optical phenomena in terms of Maxwell's idea, that this first purely didactic volume of Helmholtz is devoted.

One hundred pages are first given to a study of the properties of electric waves. The beautiful parallel treatment of electric and magnetic quantities is preserved throughout. A clear grasp of the general phenomena of electricity is here demanded of the intelligent reader. The next hundred pages cover a rigid mathematical discussion of diffraction. It is here that the author explains what is, at once, the par-

adox and the *crux* of optical science, viz., the rectilinear propagation of light, and the fact that light can and does shine around a corner. The starting-point of this discussion is a remarkable generalisation of Green's Theorem—itsself the most powerful theorem in mathematical physics—to include four independent variables, time being the one added to the usual three space-coordinates.

Geometrical optics is the subject of the third hundred pages, a very elegant chapter.

The remainder of the book goes to dispersion and polarisation, treated in terms of the electromagnetic theory. Much of the subject matter is the result of Helmholtz's own investigations concerning the mysterious connexion between ether and matter.

The appearance of these six posthumous volumes of mathematical physics, in addition to three volumes of *Scientific Papers* and two epoch-making treatises, cannot be contemplated without amazement at the changes which the genius of this one man has wrought on the face of modern science.

The ease with which he lays aside his seven-leagued boots and adapts himself to the intellectual wants of his hearers makes him a brilliant example to all teachers. While as an instructor in the elementary parts of his subject he was never a striking success, to investigators the mere mention of his name is an inspiration.

HENRY CREW.

OSTWALD'S KLASSIKER DER EXAKTEN WISSENSCHAFTEN. Vier Abhandlungen über die Elektrizität und den Magnetismus (No. 13.) Von *A. Coulomb*. Pages, 88. Price, M. 1.80. Zwei Abhandlungen über die Wärme. (No. 40.) Von *Lavoisier* und *Laplace*. Pages, 74. Price, M. 1.20. Anmerkungen und Zusätze zur Entwerfung der Land- und Himmelscharten. (No. 54.) Von *J. H. Lambert*. Pages, 95. Price, M. 1.60. Ueber Kartenprojection. (No. 55.) Von *Lagrange* und *Gauss*. Pages, 101. Price, M. 1.60. Leipzig: W. Engelmann.

The four essays of Coulomb here reprinted are the most important of his seven fundamental memoirs on the laws of electricity and magnetism. The first two are devoted to the proof that the repulsions and attractions of electrified and magnetised bodies take place according to the law of the inverse squares, the third deals with the loss of electricity in such action, the fourth proves that the electric charge is distributed over bodies by its own repulsion, and that when in equilibrium it is always at the surface. The results form the basis of the entire mathematical treatment of magnetic and electrostatic phenomena as it has taken shape in the modern theory of potential, and until the researches of Faraday formed the sole basis. Revolution after revolution has taken place since then in electrical *theory*, but the *facts* established by Coulomb remain unchanged, and his investigations, therefore may be regarded as an exemplar of scientific procedure.

The memoirs of Lavoisier and Laplace are extremely important as marking

the starting-point of the investigations which led up to the thermal theories of J. R. Mayer, Krönig, Clausius, and others, and in view of the frequent references to them in books on the history of the conservation of energy, it is well that they can be obtained in a separate and cheap form.

Lambert's researches are the first general investigations on cartography and form collaterally valuable contributions to pure mathematics. The thread of investigation in this field was continued by Lagrange, who, while still generalising the methods of treatment, aimed, as was always his wont, at obtaining practically useful results. With Gauss, emphasis was principally laid upon the abstract mathematical point of view.

The publication of this series is a valuable work, and all students should possess the Classics which relate to their departments.

**ELEMENTS OF THEORETICAL PHYSICS.** By *Dr. C. Christiansen*, Professor of Physics in the University of Copenhagen. Translated into English by *W. F. Magie, Ph. D.*, Professor of Physics in Princeton University. London and New York: The Macmillan Co. 1897. Pages, 339. Price, \$3.25.

Of the flood of recent text-books on physics the treatise of Professor Christiansen has stood high in pedagogical favor. It exists at least in a German translation and has now been Englished by Prof. W. F. Magie of Princeton University. The book is not an elementary one, and requires considerable knowledge of mathematics, but it is condensed and treats the main problems of theoretical physics in a concise and direct manner. There are fourteen chapters in all, entitled as follows: "General Theory of Motion," "The Theory of Elasticity," "Equilibrium of Fluids," "Motion of Fluids," "Internal Friction," "Capillarity," "Electrostatics," "Magnetism," "Electro-Magnetism," "Induction," "Electrical Oscillations," "Refraction of Light in Isotropic and Transparent Bodies," "Thermodynamics," and "Conduction of Heat." American text-books of physics, having a different purpose in view, devote the greater part of their space to the discussion of methods and instruments, so that a treatise like Christiansen's which is almost totally abstract and mathematical will find the field virtually unoccupied. The translation is good, and the publishers are to be congratulated upon the excellent mechanical make-up of the book.

**UEBER DEN URSTOFF UND SEINE ENERGIE.** I. Theil. Eine physikalisch-chemische Untersuchung über die theoretische Bedeutung der Gesetze von Dulong-Petit und Kopp auf der Grundlage einer kinetischen Theorie des festen Aggregatzustandes. Von *Dr. Phil. H. Keller*. Leipzig: B. G. Teubner. 1896. Pages, 58. Price, M. 2.

The problem of the *prima materia* has occupied philosophical brains for more than two thousand years, and after having been laid to rest by modern philosophical criticism as the vision of a metaphysical dream, has now again come to the fore

through the researches of physical chemistry. Both Meyer and Ostwald have expressed their presentiment as to its existence, and the latter has said that if the properties of elements are found to be functions of atomic weights, we are impelled to seek in the latter the cause of the former, and so the notion of a homogeneous primitive matter whose different agglomerated states make up the differences of the elements is readily suggested. He admits that the hypotheses underlying this suggestion are not perfectly established, but the whole corresponds to the present endeavor of science to derive all differences from a fundamental underlying unity. The same problem has occupied Dr. Keller, but where Ostwald has approached it from considerations touching the causes of the periodic law, and from Prout's hypothesis, Dr. Keller has emphasised a different factor which he believes has never been cited in support of a probable existence of a homogeneous primitive matter, namely, the law of Dulong and Petit. It is beyond our purpose here to refer to more than the philosophical trend of Dr. Keller's little paper. The treatment is mathematical and will appeal to specialists only. The author is inclined to the opinion that the universal ether and primitive matter are the same, the universal ether being uncondensed primitive matter and constituting the bond which links the earth to the sun, etc.

**THE PHASE RULE.** By *Wilder D. Bancroft*. Large 8vo, viii+235 pages. The Journal of Physical Chemistry: Ithaca, New York. Price, \$3.00.

In the last ten years great advances have been made in that part of science which applies physical methods to the elucidation of chemical problems. While the most brilliant achievements cluster about the "Theory of Solutions," the "Dissociation Hypothesis," and the molecular structure of liquids, important results have been obtained by the use of Gibb's Phase Rule and Le Chatelier's Theorem.

By a "phase" is meant a portion of matter that is chemically as well as physically homogeneous, and the Phase Rule states that the maximum number of phases possible in any given system is two more than the number of components; a component being defined as a substance of independently variable concentration. The Phase Rule having reference only to states of equilibrium, in case any alteration in a system supervenes and we want to know its direction, we have recourse to Le Chatelier's Theorem, which says that changes in the factors of equilibrium (temperature, pressure) due to external influences bring about reverse changes within the system.

The book before us is an attempt to treat the subject of qualitative equilibrium by the application of the Phase Rule and Le Chatelier's Theorem. Mathematical developments are excluded, probably with a view towards rendering the work the more acceptable to general chemists, most of whom have but a meagre mathematical equipment; graphical representations are, however, used in profusion.

After defining terms in the first chapter, the author passes to the consideration of systems made up of one component and hence presenting in maximo three



phases, solid, liquid, gaseous. Then systems containing two and three components are taken up and classified and treated according to the nature of the phases. Systems consisting of more than three components having as yet received but little experimental attention, the general theory of systems of four components together with such data as are at hand is given in the concluding chapter.

The author is full of enthusiasm for his subject, and has collected together about all that has been done along this line. Nevertheless, in some of his criticisms and discussions we might wish for greater breadth of view, and in certain points that are original with himself, more clearness.

All in all, the book is to be welcomed as a valuable aid in the study of the phenomena lying between the domains of Physics and Chemistry, and the reader will find in it novel and striking ideas about many things often regarded as trite and common. One point is especially worthy of note. Although the subject-matter pertains to chemistry and physics, nothing is said about atoms or molecules; the treatment is general and quite free from such suppositions the usefulness of which we are beginning to suspect we have in a measure outlived. C. E. L.

GRUNDZÜGE EINER THERMODYNAMISCHEN THEORIE ELEKTROCHEMISCHER KRÄFTE.

By *Dr. Alfred H. Bucherer*. Freiberg: Craz & Gerlach (Joh. Stettner).

1897. Pages, 144. Price, M. 4.

This little book is in main a criticism of the electrolytic dissociation theory by Arrhenius, and Nernst's theory of electromotive force; it also contains some animadversions on the modern theories of solutions.

The author has had great difficulty, he says, in getting a clear conception of the nature of ions, and thinks that "those phenomena, to which Arrhenius's theory owes its origin, that is, abnormal lowering of freezing point and abnormal osmotic pressures, find a more natural explanation in the assumption of an association of the dissolved substance with the solvent." This hypothesis of association is virtually a modification of the "Hydrate Theory."

The first three chapters of the book are devoted to the consideration of the Law of the Conservation of Energy and the Fundamental Principles of Thermodynamics. Emphasis is laid on the division of energy into two factors,—the intensity and the capacity factor.

A brief exposition of the ways in which thermodynamics is applied to electrochemistry, and of the various views on the nature of electrolytic conductivity leads up to the criticism of the recent views on these subjects and of the equations established by Nernst permitting of the calculation of electromotive force from data on temperature, osmotic pressure, and tension of solution. Now it must be admitted by even the most ardent partisan of these modern theories that there are some things about them that need clearing up; and whether we think the author has helped matters much or not, he will by his attack on their weak points at least have called the attention of others to them, and so assisted in their elucidation.

Particular stress throughout the book is laid upon the law of mass action, an independent deduction of which the author gives (pp. 68-72), adding a criticism of Nernst's deduction of the same law.

After a discussion of concentration cells and temperature coefficients, the author considers in separate chapters the influence on electromotive force that pressure, magnetism, gravity, capillarity, and diffusion exert. The concluding chapter treats of thermo-electricity, the original feature of the treatment being the application of the vapor tensions of the metals to the calculation of the electromotive force.

C. E. L.

OUTLINES OF PSYCHOLOGY. By *Wilhelm Wundt*. Translated with the Co-operation of the Author by *Charles Hubbard Judd, Ph. D.*, Instructor in Wesleyan University. Leipzig: Wilhelm Engelmann. New York: Gustav E. Stechert. 1897. Pages, 342.

The English translation of Professor Wundt's new *Outlines of Psychology* appeared shortly after the German work, having been translated with the co-operation of the author by Dr. Charles Hubbard Judd of Wesleyan University, and having been published by the same firm as the original, namely, Wilhelm Engelmann of Leipzig. The book was made in Germany and combines certain excellent features of both American and German books, good paper, clear print, flexible binding and an index. As a treatise the book affords "a systematic survey of the fundamentally important results and doctrines of modern psychology," viewed as a science by itself, having its own independent aims and proper coherency, and in this manner is differentiated from the author's *Grundsätze*, which treated psychology as a branch of the natural sciences, particularly physiology, and from his *Lectures on Human and Animal Psychology*, which dealt with the subject popularly and in its philosophical aspects. The ideas which lie at the basis of the treatment of the present work have left a distinctive impress on modern psychology and are known wherever Wundt is known. In their present concise and systematic formulation they constitute an introduction to the study of psychology at the hands of one of its greatest masters. Nevertheless there is something harsh and rigid in its treatment to the un-German mind; the terms, despite long use are still strange and unfamiliar, unsympathetic, and remote from our feeling. The translator who has done his work carefully and conscientiously has appended a glossary of the main German and English terms at the end of the book, a very valuable practice in the reviewer's opinion, to the need of which he called attention some time ago in *The Monist*. Alternative renderings might be suggested in some places, for it is not always necessary to adhere rigorously to a single rendering of a term in a scientific book. Words are used with freedom and take different shades from their context. The rendering of *angeboren* by "connate" might be supplemented by "innate," "native," "congenital," and "inborn." *Hilfsbegriff* is rendered by "supplementary concept" where "auxiliary concept" might perhaps be better. "Percep-

tion" as a translation of *Anschauung* and its derivatives might be varied. "Motive" would sometimes be preferable to "reason for action" as a translation for *Beweggrund*. "Main-spring" is a good and common translation of *Triebfeder*. "Proposition" is given for *Verhältniss* and seems to be a misprint for "proportion" or "ratio." *Vorstellung*, although actually and originally a German translation of "idea," might frequently be appropriately rendered by "percept," which was suggested by Max Müller. It seems odd to say "an auditory idea," at least until one gets used to it, although the German equivalent is almost, but not quite, as odd. Some authors have rendered *Völkerpsychologie* by "ethnic psychology" or "ethno-psychology," although Mr. Judd's term "social psychology" better expresses some phases of the notion. Upon the whole the glossary is good and the practice should be continued. For the most difficult words, however, a few-page references might be given to the text, so that critics could judge of the admissibility of alternative renderings. T. J. McC.

BIOLOGICAL LECTURES DELIVERED AT THE MARINE BIOLOGICAL LABORATORY OF WOOD'S HOLL, IN THE SUMMER SESSION OF 1895. Boston and London: Ginn & Co. 1896. Pages, 188.

We have already given an account of the purpose of the work of the Marine Biological Laboratory of Wood's Holl and of the biological lectures which are there delivered and yearly gathered into the form of a substantial volume, so that we have only to append here the titles of the eleven lectures which make up the volume for the summer session of 1895. They are as follows: 1. Infection and Intoxication, by Simon Flexner; 2. Immunity, by George M. Sternberg; 3. A Student's Reminiscences of Huxley, by Henry Fairfield Osborn; 4. Paleontology as a Morphological Discipline, by W. B. Scott; 5. Explanations, or How Phenomena Are Interpreted, by A. E. Dolbear; 6. Known Relations Between Mind and Matter, A. E. Dolbear; 7. On the Physical Basis of Animal Phosphorescence, by S. Watasé; 8. The Primary Segmentation of the Vertebrate Head, by William A. Locy; 9. The Segmentation of the Head, by J. S. Kingsley; 10. Bibliography: A Study of Resources, by Charles Sedgwick Minot; and 11. The Transformation of Sporophyllary to Vegetative Organs, by George F. Atkinson. These are all important investigations by recognised masters of American science, and although passages from some of them have already appeared in the periodicals, it is yet well that they have been brought into an independent volume. They will well repay careful reading and study. p.

ROUSSEAU UND SEINE PHILOSOPHIE. Von Harald Höffding, Professor der Philosophie an der Universität Kopenhagen. (Frommann's Klassiker der Philosophie. IV.). Stuttgart: Frommanns. 1897. Pages, 158. Price, M. 1.75.

Rousseau is a man of contradictions. To speak of Rousseau's philosophy is in a certain sense a misnomer, for Rousseau has no philosophy. He always follows the

impulses of his sentiments, and this is the reason why he could be so extremely self-contradictory. His conversion to Roman Catholicism was a matter of sentiment, and so were his relations to Madame de Warens; so his whole life. He is commonly supposed to be one of the leaders of liberal thought and the forerunner of the Revolution, and so he is, but he was at the same time one of the most reactionary men that ever lived, and the reactionary influence of his books will be felt as long as they are read. The question whether the renaissance of science and arts had contributed to purify and improve morals was answered by him in the negative. He saw in culture and civilisation an aberration from nature, and his saying "Back to Nature" meant to him an abandonment of refinement of all kinds. He was so bitter in his denunciations of science, art, and civilisation in general, so fervent in his appeals to return to the primitive state of nature, that Voltaire is reported to have said, after the perusal of his book, that he felt like crawling on all fours. Rousseau is in this respect a genuine type of the impulsive liberal who for the sake of opposition would oppose everything that is established and exercises a dominant influence upon our present life. He forms an exact parallel to the agnostic who for the sake of opposing the gnosticism of traditional religion, would condemn any kind of gnosis and proclaim the dogma of the absolute insolubility of all fundamental questions of philosophy. Nevertheless, Rousseau is a prominent man who exercised a reactionary influence because the civilisation of his days and of his country was not the right civilisation. It was artificial and unnatural.

The most important part of Rousseau's philosophy is perhaps his ideas on education, but here again we have the contradiction that he, the man of the people, the representative of the poor, believes that education is for the rich alone. The poor need no education, for it is impossible for them to acquire an education. Nevertheless, in an educational line too, Rousseau has accomplished a great work, not only because his *Emile* contains many most valuable suggestions for the education of children, but also because he called attention to a great number of malpractices in the raising of children. As a practical educator Rousseau proved incapable, but his theories contain germs of truth which proved useful, although his whole work is unsystematic and contains tendencies that are against the spirit of progress. While the study of Rousseau's works will prove very valuable to the practical educator on account of the many suggestions which his writings contain, he will nevertheless fail to satisfy the present generation, at least here in America, because his very sentiments are contrary to the progressive spirit of to-day.

Professor Höfding's sketch is a simple exposition of Rousseau's career and his life's work. He defines the type of Rousseau's cast of mind, and portrays his personality as it developed in the history of his life. He recognises the high ideal aspirations of his fervid sentiments, but at the same time points out the restrictions which limited him. It is interesting to see that the same man who deemed it unnecessary to have the poor educated, devoted very little space to the education of women. His views on this subject are decidedly French. An educated woman or



*la femme bel-esprit* is disgusting to him. "*La Femme bel-esprit*," he says, "is a plague to her husband, to her children, to her friends, in brief to all." The education of woman must be subject to the one idea that she is to become wife and mother. Her main virtue should be placidity. An independent, intellectual, or religious education is neither necessary nor possible, for a woman's reason is practical. She has a sense for details and not for principles. The faith of woman is belief in authority. As a girl she should have the religion of her mother, and as a wife the religion of her husband, and yet Rousseau believes (as he himself was practically governed by Madame de Warens) that woman has a natural talent for governing man. The rôle of the wife consists in her placidity, in her adaptiveness, in her obedience. Her orders consist in caresses, her threats in tears. She should dominate the house in the same way that the minister rules the State, that is to say, she must give a turn to the situation so that whatever she wants will be commanded.

Rousseau happily did not speak the last word in matters of education. Professor Höfding rightly says: "Pestalozzi carried the work into the province where Rousseau failed to accomplish anything. Moved by a zealous compassion for the intellectual emergencies for the great mass of the people, he applied some of Rousseau's educational principles to the popular schools. Through Pestalozzi and Basedon, the pedagogical ideas of Rousseau were applied generally to the educational methods of the succeeding generation. And thus," concludes Professor Höfding, "the well which Rousseau had dug contained a greater wealth than he himself had hoped for." P. C.

**DYNAMIC SOCIOLOGY OR APPLIED SOCIAL SCIENCE. As Based Upon Static Sociology and the Less Complex Sciences. By Lester F. Ward. Two Volumes. Second Edition. New York: A. Appleton & Co. 1897. Pages, 1432.**

Mr. Lester F. Ward is to be congratulated upon the appearance of the second edition of his *Dynamic Sociology*, a work whose merits are widely recognised and familiar to all students of sociology. He has incorporated in the Preface to the present edition a sketch of the interesting history and vicissitudes of his work which has been accorded the signal distinction of having been prohibited by the Russian censor and of having been burned in its Russian edition, not from any intrinsic heresy, so far as the author can see, but from the resemblance between its title and the word "dynamite," or most probably from its expression of liberal thought in politics and in education. First published in 1883, when the word "sociology" was rarely spoken, it has witnessed the rise of its science from dim obscurity to a plane where it has become one of the most popular and most widely cultivated branches of study. Mr. Ward's work is one of immense learning and great clearness of expression, and should find accordingly a wide circle of appreciative readers.

HERBERT SPENCER. Von *Otto Gaupp*. Frommanns Klassiker der Philosophie, V. Stuttgart. 1897. Fr. Frommanns Verlag. Price, M. 1.75.

The author complains that the professional philosophers of Germany do not give to Mr. Herbert Spencer the place he deserves. He is known among them as the philosopher of the unknowable, not as the philosopher of evolution. Indeed there are many evolutionists in Germany who do not even know of the claims of Mr. Spencer's disciples that he was the first who universally applied the principles of evolution—a claim which can be made only by those who are utterly ignorant of the history of the idea of evolution and know nothing of Wolff, Lamarck, Treviranus, Karl von Baer, and the other pre-Darwinian evolutionists. Herr Gaupp characterises Mr. Spencer as an ideal philosopher after his own fashion who hates the *Treibhausmethoden* (p. 14) of the German educational system, is unattentive and lazy at school (p. 13), yet grows up to be at least relatively *ein kräftiger und gesunder Bursche*. The main sources of the pamphlet are Spencer's own works and Mr. Youmans's writings on Spencer. The treatment is that of an admirer; popular but uncritical. KPS.

LA FILOSOFIA SCIENTIFICA DEL DIRITTO IN INGHILTERRA. Part I., From Bacon to Hume. By *Dr. Giacomo Laviosa*. Turin: Carlo Clausen. 1897. Pp. 850. Price, 10 Lire.

This volume contains an introductory chapter on the two currents of modern thought in ethico-juridical philosophy, namely, the Baconian and the Cartesian. The author accepts the Baconian method and proceeds to expound and criticise English philosophy in so far as it relates to his subject from Bacon to Hume, including Hobbes, Locke, Milton, Shaftesbury, Butler, Hutcheson, and Mandeville. The purpose of the book, as expressed by the author, is to make a modest contribution to the critical revision of English doctrines in regard to the scientific philosophy of law. Such a revision the author believes is necessary to establish a solid basis for the construction of the science. "The historical study of this series of authors constitutes the best preparation for the critical study of the aggregate of ideas which has resulted from their writings. This preparatory study forms the precise object of the present work" (p. 95). The aim of the book is thus seen to be a worthy one. Without such a study as is here made, it is impossible to estimate the value of ethico-juridical ideas. The author's style is easy and his exposition clear. He shows a wide acquaintance not only with English thought, but also with French and German. I. W. H.

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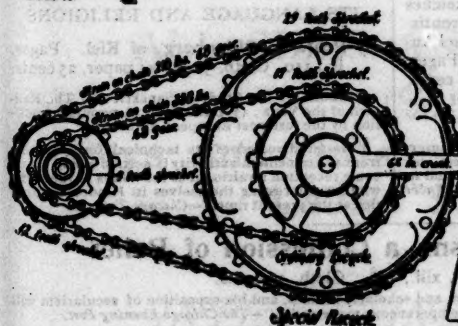


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